INFLUENCE OF INDUSTRIAL ATTACHMENT PRACTICES ON THE ACQUISITION OF VOCATIONAL SKILLS AMONG TVET TRAINEES IN KAKAMEGA COUNTY, KENYA

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A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Education in Curriculum and Instruction of Masinde Muliro University of Science and Technology

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DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

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CERTIFICATION

The undersigned certify that they have read as supervisors and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled: **"Influence of Industrial Attachment Practices on the Acquisition of Vocational Skills among TVET Trainees in Kenya"**

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DEDICATION

To my beloved husband, George Oloo who inspired me to enrol for my post graduate degree.

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ABSTRACT

Industrial attachment is a key and integral part of Technical and Vocational Education and Training (TVET) education meant to bridge theory and practice. A notable number of graduates churned out by TVET institutions have shown inadequate vocational skills during their first appointment. It is against this backdrop that this study sought to establish the influence of industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya. The study objectives were: to establish the effect of induction process on acquisition of vocational skills during industrial attachment; to determine the effect of tasks assigned to trainees on acquisition of vocational skills during industrial attachment and to establish the effect of supervision in facilitating acquisition of vocational skills among TVET trainees in Kenya. The study was guided by experiential learning theory and educational theory of apprenticeship. The study applied mixed methods research design guided by the pragmatic paradigm. All nine public Technical Vocational Colleges (TVC) institutions found within Kakamega County were included in the study. Purposive sampling was used to select only third year trainees on industrial attachment and taking applied sciences courses, TVC assessors and industry supervisors. From a study population of 5220 trainees, 570 TVC assessors and 500 industry supervisors, a sample size of 372 trainees, 57 TVC assessors and 50 industry supervisors was obtained. A pilot study was conducted to establish the reliability and validity of the instruments. Cronbach alpha coefficient of internal consistency was used as a reliability measure where alpha of 0.833 was obtained for trainee's questionnaire. Data was collected using one questionnaire for trainees and two interview guides; for industrial supervisors and TVC assessors. Quantitative data was coded and analysed using SPSS version 26 to determine relationships among study variables. Simple linear regression and multiple linear regression analysis were used for hypothesis testing. Qualitative data from interviews was analysed by employing narrative and thematic analytical approaches. The study rejected H_{01}: The industrial attachment induction process has no effect on the acquisition of vocational skills among TVET trainees at p=0.001, H_{02}; The tasks assigned to trainees during industrial attachment do not affect the acquisition of vocational skills among TVET trainees at $p = 0.001$ and H_{03}; There is no relationship between the supervision provided during industrial attachment and the acquisition of vocational skills among TVET trainees at p=0.001. The study found that induction, tasks assigned and supervision are critical to vocational skill acquisition among TVET trainees during industrial attachment. The study recommends strengthening of induction process, aligning tasks with training objectives, enhancing supervision and policy and institutional collaboration.

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ABBREVIATIONS AND ACRONYMS

DIT	Directorate of Industrial Training
TVC	Technical and Vocational Colleges
TTI	Technical Training Institution
TVET	Technical and Vocational Education Training
TVETA	Technical and Vocational Education Training Authority
CBET	Competency Based Education and Training
NITA	National Industrial Training Authority
ESQAC	Education Quality Assurance and Standards Council
FKE	Federation of Kenya Employers

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Industrial attachment is an essential element of TVET (Technical and Vocational Education and Training) curricula, providing trainees with the chance to acquire practical experience in actual work environments. Industrial training applies theoretical knowledge to practical situations, thereby reinforcing the trainee's comprehension and proficiency in their area of expertise, in response to employers' persistent demand for graduates with practical experience (Issa & Muya 2025). TVET education would lack significance without industrial attachment (Mwaura *et al.*, 2022). During industrial attachment, trainees obtain and implement knowledge, skills, and attitudes in a pertinent environment through the engagement of both body and mind (Meta,2022).

Industrial attachment experiences expose trainees to foreign technology, work routines, and the appreciation and adherence to procedures inherent in organizational structures. To ensure that Kenya's TVET sector meets national expectations and aligns with global technological advancements, significant reforms must be implemented to formally connect TVET institutions with industry (Mboya,2020).

The simulated work environment in training institutions markedly contrasts with the actual working environment in which trainees will ultimately operate (Anjum, 2020). Despite the recognized disparities among programs, training institutions concede that industrial attachment experiences enable trainees to cultivate an understanding of workplace demands, acquire job-related skills, gain practical experience, and establish

personal connections between theory and practice (Makworo, Muchiri & Nyongesa, 2021).

Vocational skills acquisition typically utilizes a combination of cognitive and behavioural problem-solving approaches, both designed to improve an individual's positive skill development (Maingi, 2020). Nyongesa and Makokha (2020) emphasize the importance of TVET education in nation-building and fostering sustainable development through skill acquisition. The cultivation of these skills promotes structural transformation and economic advancement by providing individuals with marketable and productivity-boosting competencies, hence increasing their competitiveness (Meta, 2023).

In developed countries such as Germany, Switzerland and the United States, structured work-based learning has long been integrated into education systems. The German dual training model, for example, combines classroom instruction with workplace practice to ensure trainees acquire both technical and professional competencies (OECD, 2021). Similarly, cooperative education programs in the United States connect trainees with industries where they gain relevant skills before graduation, thereby enhancing employability and innovation (World Bank, 2020; International Energy Agency 2022). Evidence suggests that these systems reduce the mismatch between education outcomes and labor market needs, while also preparing trainees for dynamic global economies (ILO, 2023).

At the regional level, African countries have increasingly embraced industrial attachment as a strategy to address youth unemployment and the widening skills gap. Despite

progress in TVET reforms, many employers across Africa still report challenges in finding workers with adequate technical and vocational competencies (African Union, 2020). Industrial attachment has therefore become central in policies seeking to align training with industry demands. However, several challenges persist, including limited placement opportunities, weak institutional–industry linkages, and insufficient supervision of trainees (Aketch, Nduku & Piliyesi, 2025). Even so, successful models such as South Africa's trainee-ships and Nigeria's industrial training schemes demonstrate that strong collaboration between training institutions and industries can enhance skills development and improve labor market outcomes (UNESCO-UNEVOC, 2022).

In Kenya, industrial attachment is a mandatory requirement for all trainees in TVET institutions as guided by the Technical and Vocational Education and Training Authority (TVETA). The purpose is to provide trainees with opportunities to apply classroom-acquired knowledge in real workplace environments and to acquire practical skills relevant to the labor market (TVETA, 2023). Empirical studies affirm that industrial attachment plays a vital role in equipping trainees with vocational, technical and professional skills necessary for both employment and self-employment (Mwaura, Njeru, & Mugo, 2022).

Nevertheless, the Kenyan system faces challenges, including inadequate supervision, limited attachment slots, and a mismatch between institutional curricula and industrial requirements (Kinyanjui, 2021). In response, the government has introduced reforms through the Competency-Based Education and Training (CBET) framework, which emphasizes continuous collaboration with industry, structured mentorship, and outcome-

based assessment to strengthen skill acquisition during attachment (Republic of Kenya, 2022).

TVET training emphasizes the acquisition of vocational skills and knowledge pertinent to a specific trade or occupation (Maingi, 2020). The skills acquired differ significantly based on the type of attachment, allocated tasks and industry (Musyimi, 2021). For instance, automotive mechanics trainees may develop competencies in vehicle maintenance, diagnostics and repair during their attachment at an automotive workshop, while information and communication trainees may acquire skills in software development, programming languages, web development, database management, network configuration, troubleshooting and cybersecurity.

Industrial attachment practices encompass all actions at the attachment site designed to enhance the vocational skill acquisition of trainees. These encompass supervision programs, the induction process, assessment by TVET assessors, supervision and performance evaluation with feedback. Induction process is essential for assimilating TVET trainees into the workplace environment prior to their attachment and across several departments (Jørgensen & Becker,2023). Induction equips trainees physically, emotionally and psychologically with their tasks and responsibilities, facilitating a seamless transition into the corporate setting. Jahonga (2020) asserts that the thoroughness, comprehensiveness and clarity of the induction process affect trainees' capacity to acclimate to their roles, engage effectively in given tasks and gain vocational skills during industrial attachment. Induction process prepares trainees for their duties, familiarizes them with firm’s culture and policies, and cultivates a sense of belonging and preparedness for practical work (Zalo,2023).

The nature and diversity of activities assigned during industrial attachment influence the acquisition of vocational skills by trainees (Bor, Okemwa & Dimo, 2024). The nature, intricacy and responsibilities allocated to trainees during industrial attachment influence their skill acquisition. The accomplishment of these duties depends on the supervision and support provided to trainees during their attachment. Oversight during industrial attachment is crucial for the professional advancement of trainees engaged in practical training within industrial environments (Dampson, 2022). Cahya and Firdaus (2024) posits that the extent of support, instruction and feedback from supervisors and colleagues during the attachment phase influences skill development. This aims to enhance learning, skill acquisition and integration into the professional milieu.

The State Department of TVET, under the Ministry of Education, is tasked with the governance and formulation of policies pertaining to TVET institutions. Kenya lacks a centralized industrial attachment policy, with activities often regulated by guidelines from particular institutions, professional organizations and regulatory bodies (Ayieko, *et al.,* 2023). Institutional policies or guidelines concerning industrial attachment may encompass duration and timing, placement criteria, learning objectives, assigned tasks for trainees, supervision, assessment and evaluation and quality assurance.

Regulatory bodies overseeing attachment in Kenya comprise the National Industrial Training Authority (NITA), the Commission for University Education (CUE) and TVETA, which supervise the national skills training system and ensure training quality. The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) coordinates Competency-Based Education and Training (CBET), while the

Kenya National Qualification Framework (KNQF) and the TVET Funding Board facilitate the mobilization of funds for training (Makworo *et al.*, 2021).

The TVET Standard on Industrial Attachment: Requirements and Guidelines (TVETS 09:2023), published by TVETA in February 2023, offers detailed instructions for executing industrial attachments in the TVET sub-sector. This standard seeks to standardize industrial attachment procedures throughout Kenyan TVET institutions, linking them with international best practices (Mwaura, 2024). This is accomplished by delineating the responsibilities of TVET institutions, trainees, industry partners and trainers in the placement, mentoring, coaching and evaluation of trainees during industrial attachment. Additional responsibilities encompass ongoing monitoring and evaluation of industrial attachment processes to guarantee quality and relevance, specifying the methodologies for measuring trainee performance during attachments and offering guidance for the appropriate termination of industrial attachments when required.

NITA plays a crucial role in facilitating industrial attachments by connecting institutions with industry, serving as a conduit between training organizations and industry stakeholders to secure attachment opportunities for trainees and providing guidelines and resources to both employers and trainees to ensure effective attachment experiences. NITA's participation guarantees that industrial attachments are organized, pertinent and advantageous for both trainees and industry collaborators.

Individual TVET institutions have created internal policies to oversee industrial attachments (Mutembei, Kibaara & Gichohi, 2024). These regulations delineate the

procedures for trainee placement encompassing, application processes, selection criteria, supervision, assessment, code of conduct and placement protocols. These institutional policies guarantee that the specific requirements of each training program are met while conforming to national standards.

CBET Framework for Kenya seeks to address the discrepancies between programs provided by TVET institutions and the requirements of the industry. Sessional Paper No. X of 2024 is a policy framework aimed at improving the education and training sectors in Kenya, emphasizing the necessity of ensuring quality across all educational levels. TVETA regulates TVET institutions, whereas basic education is overseen by the Education Standards and Quality Assurance Council (ESQAC).

Mwelwa (2023) asserts that host institutions are mandated by regulators to strategize, assign tasks to trainees, execute induction and establish evaluation protocols in accordance with the educational activities. TVET trainers supervise trainees during their attachment by performing on-site visits to the industries and engaging in talks with their industry host supervisors. Trainees keep a current logbook and produce a report that partially outlines their function and contributions during their internship period (Kenya Revenue Authority, 2025). High-quality attachments facilitate the acquisition of occupational skills among trainees, thereby bridging the disparity between accessible work possibilities and requisite abilities (Issa & Muya 2025).

The advantages of industrial attachment benefit the three key stakeholders: the trainees, TVET institutions, and host organizations (Atuhaire, 2022). Industrial attachment is

deemed crucial, especially for tertiary institutions (Mboya, 2020). Nyongesa and Makokha (2020) regard the program as indispensable. In this regard, robust connections are necessitated between training institutions and the job market.

Host institutions providing attachment opportunities gain from enhanced collaboration, cost-effective labour, the introduction of innovative viewpoints by trainees, alignment with corporate social responsibility principles, and the establishment of a recruitment pipeline for future skilled and motivated employees (Issa & Muya, 2025). Workplaces promote particular learning outcomes that may enhance trainees' employability upon the completion of a training program (Maingi, 2020). From an industry standpoint, certain organizations are unable to operate without trainees on attachment due to financial constraints that prevent them from hiring permanent employees (Musyimi, 2021).

Industrial attachment offers trainees significant real-world experience, allowing them to enhance their knowledge and refine the abilities acquired throughout their academic studies (Wahungu *et al.*, 2023). Host organizations benefit from utilizing skilled and motivated prospective employees at a little cost. Industrial attachments provide trainees with the advantage of collaborating with seasoned professionals, fostering learning opportunities and challenging their expertise (Dondofema, *et al*.,2020).

Industrial attachment provides trainees with exposure to authentic work culture, facilitates networking with industry specialists, and enhances their comprehension of their future vocation (Ayieko, *et al*, 2023). Likewise, Biraori and Ouko (2023) assert that industrial attachment significantly influences trainees' career trajectories. A proficient

workforce that satisfies the requirements of a nation's labour market is a crucial factor in driving social and economic advancement.

Training programs must establish an atmosphere that enables trainees to connect theoretical knowledge with practical application through simulated work settings in training institutions or actual workplaces (Rono, 2020). Nonetheless, the simulated work environment in the majority of training institutions significantly diverges from the actual working setting in which trainees will ultimately be expected to operate. Consequently, TVETs integrate on-the-job attachments into their programs to furnish trainees with workplace experience.

Industrial training is meant to expose trainees to the whims and caprices of the working environment (Dondofema, 2020). Oteki (2023) on the importance of industrial training noted that trainees who embark on industrial attachment develop greater confidence and are at ease when absorbed into real working life situations. The study concluded that industrial attachment is mandatory for trainees and very much encouraged in TVET curriculum. Similarly, Orodho (2020) on benefits derived from industrial attachment, noted that it helps graduates to manage what he termed as “entry shock” when they find themselves on the job market.

Industrial training is meant to familiarize trainees with the unpredictable nature of the workplace (Dondofema, 2020). Oteki (2023) emphasizing on the significance of industrial training, he observed that trainees who engage in industrial attachments cultivate enhanced confidence and adapt more readily to authentic workplace

environments. The study concluded that industry attachment is obligatory for trainees and strongly advocated within the TVET program.

Globally, policies are being developed to enhance graduates' employability through the integration of work-based learning in higher education. The European Commission (2020) advocates for increased collaboration between universities and industry to foster innovation and mitigate skill-related issues. In Australia, Canada, and South Africa, colleges are establishing industrial attachment programs to meet the demands of the economy and the labour force (Knight & Drysdale, 2020).

The quality of industrial attachments impacts the training provided by TVET institutions, enabling trainees to use evidence-based practices in the workplace and hence diminishing skills mismatches (Baynit & Ngussa, 2021). Attachment is correlated with enhanced productivity and inventiveness. The International Labour Organization (ILO) (2023) asserts that well-trained individuals comprehend process complexities, hence enhancing their likelihood of improving productivity.

The ongoing challenges of food insecurity, unemployment, and poverty in developing nations raise doubts about the efficacy of training methods like industrial attachment. The Government of Kenya envisions Technical and Vocational Education Training as a means to attain socio-economic and technical change, in alignment with Vision 2030, which aims to enhance the quality of education and training for young (Republic of Kenya, 2020, Kenya Vision, 2030). The objective of TVET in the nation is to cultivate skilled and globally competitive employable personnel.

TVET institutions in Kenya have recently garnered increased attention, leading to a greater budget allocation (National Treasury and Planning Department, 2025). Funding has been enhanced through the assistance of many development partners, including the African Development Bank, World Bank and NEPAD, among others. Bilateral assistance from the governments of China, Canada and Germany also contributes to funding the sector. The substantial funding of TVET institutions seeks to reform and enhance enrolment (Musyimi, 2021; Mukhwana *et al.*, 2021). During the 2024-2025 fiscal year, the government allocated Ksh. 30.7 billion for TVET capitations, as well as the construction and equipping of TTVETs (National Treasury and Planning Department, 2025).

Technical training is recognized as an effective approach to bridging skills gaps, mitigating youth unemployment and supporting firms (Olayo, 2022). The incorporation of youth into the labour market poses a substantial problem for developing nations such as Kenya, characterized by inactivity and elevated underemployment rates (Manoah,2024). Biewenga, DeBoer and Tumaini Innovation Center, 2024)) states that a deficiency in suitable skills indicates that an individual lacks the technical, cognitive and non-cognitive qualities required to satisfy employer expectations.

The pivotal significance of education and training in national development is commonly acknowledged, prompting numerous governments to endeavour to provide these services to their populations. Education and training are excessively emphasized as requirements for human development and are essential for varied economic success. The United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020) asserts that

education and training constitute not just a fundamental human right but also a public good.

The efficacy of technical vocational training programs is correlated with the demand-oriented vocational skills imparted (Kibet, 2025). Vocational and Technology Education is regarded as a solution to several social, economic, and environmental issues, as well as an exceptional tool for attaining the United Nations Sustainable Development Goals (SDGs) (Olayo, 2022). Bor, Okemwa and Dimo (2024) asserts that industrial attachment should facilitate the development of a quality practice that bridges the divide between industry and educational institutions.

Attachment equips youths with relevant skills that align with labour market demands, hence enhancing trainees' career prospects and employability (Biewenga, *et al.*, 2024). International Labour Organization. (2025) observed that youth unemployment poses a substantial difficulty in Kenya, exacerbated by the labour market's preference for experienced candidates during recruitment, as influenced by Competency Based Technical Training on youth employability.

A correlation exists between industrial attachment and other career-related factors; for instance, Kithinji (2022) identified a positive association between industrial attachment and career decision-making, self-efficacy, career commitment, exploration, aspirations, congruence and planning. Issa and Muya (2025) determined that industry attachment enhances vocational skills acquisition and soft skills development. Anjum (2020) asserted that industrial attachment programs influence the professional development and

competencies of business trainees in Pakistan, particularly for personal growth, skills, and talents.

This study was based on a comprehensive framework of historical, philosophical, sociological, and psychological grounds. The philosophical underpinning of this study is on pragmatism, emphasizing the practical application of knowledge and the results of educational activities. The research elucidated the correlation between industrial attachment practices and the acquisition of practical skills and employment preparedness. This study investigated the manner in which trainees acquire knowledge in authentic environments, a fundamental principle of constructivist philosophy. Constructivist learning theories assert that trainees generate knowledge through experiences, highlighting the significance of practical training offered by industry affiliations.

This study's psychological base encompasses the cognitive and motivational factors that affect learning and skill acquisition during industrial attachments. The research utilized experiential learning theories; Kolb's Learning Cycle and educational theory apprenticeship, which asserts that knowledge is generated via the transformation of experience. Cognitive ideas concerning skill acquisition and expertise growth are essential for comprehending how trainees cultivate vocational skills during industrial attachments.

These foundations combined establish a comprehensive framework for examining how industrial attachments effectively connect theoretical education with actual skill development, hence boosting the employability and productivity of TVET graduates. Literature indicates that industrial attachment, or Work-Integrated Learning (WIL),

bridges the gap between academic knowledge and industry requirements (Kipngetich, Kapkiai & Chumba 2025; Sewell *et al.*, 2020). Oteki and Ouko (2023) elucidate that industrial attachment enables trainees to use their knowledge and acquire valuable skills, resulting in improved outcomes post-graduation and the commencement of their employment.

Furthermore, businesses assert that preparedness for employment and acquiring practical experience through an industrial placement are essential. Makworo, *et al.* (2021) established that employers regard experiential learning as beneficial, as it enables trainees to acquire essential competencies in their field. Current local research and studies have primarily concentrated on the inadequacy and irrelevance of training equipment and instructional materials, rather than the impact of industrial attachment practices on the acquisition of vocational skills. Musyimi (2021) indicated that the training equipment utilized in TVET colleges was not pertinent to those employed in industry.

Kakamega County, situated in Western Kenya, covers an area of around 3,033 km² and has a population of approximately 1.87 million according to the 2019 census. The county features a comprehensive educational framework that includes 51 youth polytechnics, 9 public Technical Vocational Colleges/Centres (TVCs), and 13 private TVCs (TVETA, 2023), underscoring its capacity as a vocational skills development centre.

Nanjala, Egessa and Mumaraki (2025) established that the majority of TVET institutions in Kakamega County have sufficient instructional resources; nonetheless, they are deficient in contemporary technological facilities that align with the dynamic nature of industry, exhibit gaps in instructors' industrial exposure and suffer from inadequate

supervision of attachment programs. To rectify certain deficiencies, the Kakamega County Assembly instituted the Attachment and Internship Policy (2016), requiring organized industry attachments to enhance technical training. This policy establishes guidelines for orientation, supervision, mentorship and reporting during industrial placements, with the objective of connecting classroom instruction to real workplace competencies.

This study examined the influence of industrial attachment practices on the development of vocational skills among TVET trainees, emphasizing the elements that affect skill acquisition during attachment periods. The study offers recommendations for improving the industrial attachment program by analysing the experiences of TVET trainees, assessors, and industrial supervisors to address the skills gap among TVET trainees.

1.2 Statement of the Problem

Despite the strategic role of TVET institutions in equipping trainees with employable skills, there remains a persistent gap between the skills TVET graduates possess and those demanded by the employers (Mwaura *et al*., 2024; FKE Skills Needs Survey,2023). Industrial attachment, a key component of the TVET curriculum, is intended to bridge this gap by providing trainees with hands-on experience to link theory with practice. Concerns have been raised by employers, policymakers and educators regarding the effectiveness of industrial attachment practices in achieving this objective (Makworo *et al.,* 2021; Meta, 2022). Several recent studies, including the FKE Skills Needs Survey (2023); Mutembei, *et al.* (2024) and Mwaura (2024), reveal that many graduates still lack the vocational skills needed for the job market. Due to these gaps, employers have to

retrain new employees which results in higher on boarding expenses and slower productivity.

Existing studies often attributes the lack of vocational skills to many factors including the entry behaviour of trainees, inadequate training resources, curriculum alignment and institutional training (Maingi, 2020; Kipngetich, Kapkiai & Chumba, 2025). Limited attention has been paid to how specific practices during industrial attachment such as industrial induction process, task assignment and industrial supervision role influence vocational skills acquisition.

Inadequate vocational skills may delay or even deter the attainment of African Agenda 2063, UN 2030 Agenda for Sustainable Development, East Africa Vision 2025, Vision 2030, Skill Development Agenda, Big 4 Agenda, Bottom –up Economic Transformation Agenda,2023, National Education Strategic Plan,2024 and Strategic Development Goal No.4 that advocates for provision of quality education.

It is against this backdrop that this study seeks to investigate the influence of industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya.

1.3 Purpose of the Study

This study sought to establish the influence of industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya in order to improve the effectiveness of industrial attachment practices and ensure TVET trainees gain the vocational skills needed for the labour market.

1.3.1 Objectives of the Study

Specific objectives of the study were as follows;

i. To establish the effect of induction process on acquisition of vocational skills during industrial attachment among TVET trainees
ii. To determine the effect of tasks assigned to TVET trainees on acquisition of vocational skills during industrial attachment
iii. To establish the effect of supervision during industrial attachment in facilitating acquisition of vocational skills among TVET trainees in Kenya

1.4 Research Hypotheses

The study was guided by the following research hypotheses:

H_{01}: Induction process during industrial attachment has no effect on acquisition of vocational skills among TVET trainees in Kenya.

H_{02}: The tasks assigned to trainees during industrial attachment do not affect the acquisition of vocational skills among TVET trainees in Kenya.

H_{03}: There is no significant relationship between the supervision provided during industrial attachment and the acquisition of vocational skills among TVET trainees in Kenya.

1.5 Scope of the Study

The study sought to establish the influence of Industrial attachment practices on vocational skills acquisition among TVET trainees in Kenya. It was conducted in Kakamega County and was confined to all public Technical and Vocational Colleges (TVCs) offering mainly higher diploma and Diploma courses. Public TVETS offer opportunities to examine issues of accessibility, government investment, policy impact,

equity, social mobility, alignment with public policy goals, accountability and transparency and the generalizability of research findings. While private TVETS also play a significant role in provision of technical and vocational education, focusing on public institutions can help address broader social and policy concerns related to vocational education and training. The study focused on trainees pursuing applied sciences diploma programmes.

Applied sciences programs cover a wide range of courses that focus on the practical application of vocational skills in various industries and sectors. These programs typically provide hands-on training and skills development to prepare trainees for careers in their fields. The diploma programmes included Engineering Technology, Information Technology, Biotechnology, Environmental Science, Health Sciences, Food Technology among others. The study centered on how practices during industrial attachment influence acquisition of the vocational skills of TVET trainees.

1.6 Justification for the Study

The study sought to determine how industrial attachment practices influence the development of vocational skills among TVET trainees in Kenya. Although industrial attachment is an integral component of TVET training, limited empirical evidence exists on how specific practices such as induction, tasks assigned and supervision influence skill acquisition. Given the critical role of the TVET sector in addressing youth unemployment, enhancing employability and supporting Kenya's Vision 2030 and CBET reforms (Issa and Muya, 2025), this study sought to fill this knowledge gap. The

findings inform policy and practice by guiding the improvement of industrial attachment programs to strengthen the relevance and quality of TVET training.

1.7 Significance of the Study

This study is significant as it contributes to the growing body of knowledge on TVET by offering practical insights into how industrial attachment practices specifically induction, task assignment and supervision influence the acquisition of vocational skills among trainees in Kenya. The findings have implications for various stakeholders.

The study gives insights to curriculum developers, TVET assessors and administrators in understanding how to strengthen industrial attachment frameworks. Institutions are able to redesign their programs to better align with industry needs and national training goals. Host institutions benefit from insights on the critical role of structured induction, meaningful and relevant task allocation and effective supervision in improving trainee outcomes. These findings inform improvements in how organizations plan, implement, and monitor industrial attachment programs.

The study findings inform TVETA, the Ministry of Education, and other relevant agencies in developing and refining policies, standards and guidelines for industrial attachment. This supports the creation of more standardized and impactful attachment experiences nationwide. The study also enhances the learning experience for TVET trainees, as they should be more proactive in seeking meaningful learning experiences during their attachments. As the nation emphasizes vocational training as a primary method for mitigating youth unemployment and fostering economic development, it is essential to assess the efficacy of industrial attachment.

The findings revealed strengths and limitations in current industrial attachment practices consequently informing enhancements in curriculum design, institutional collaborations with industry, and overall training quality. Finally, apart from adding to the world of knowledge about industrial attachment, this study acts as a provocation and a springboard from which other researchers can carry out further research on industrial attachment programme. It addresses key gaps in the literature, particularly in the Kenyan context, and stimulate future research in areas of trainee attitude and post-attachment evaluation.

1.8 Basic Assumptions of the Study

The study assumed that industrial attachment is a fundamental element of vocational education, executed throughout Technical and Vocational Education and Training (TVET) institutions in Kenya. Secondly, the study assumed that industrial attachment environment was relatively consistent across host institutions and disciplines within Kakamega County. The study postulates that the quality and structure of industrial attachment practices differ and that these discrepancies significantly influence the vocational skill acquisition of trainees.

Moreover, it is presumed that trainees, supervisors and instructors offer truthful and precise accounts of their experiences and opinions of industrial attachment. Finally, the study assumed that vocational abilities can be reliably evaluated and quantified using self-reported results from trainees who are on industrial attachment. These assumptions established the basis for analysing how the nature, quality and industrial attachment affect the cultivation of vocational and employable skills among TVET trainees in Kenya.

1.9 Limitations of the Study

The following were the major limitations of this study;

Although the study was carefully designed and implemented, several limitations were encountered. To address their potential impact on the research findings, various mitigation strategies were applied, as explained below:

Reliance on self-reported data posed a risk of response bias, where respondents might have provided socially desirable answers. This was mitigated by assuring participants of confidentiality and anonymity and triangulating quantitative data from trainee questionnaires with interview responses from supervisors and assessors to help cross-verify responses and improve data credibility.

The study's generalizability is limited since it focused on selected Public TVET institutions and industrial organizations in Kakamega county and not the whole country. However, this was mitigated by selecting a diverse sample from all sub-counties and industry sectors to enhance representativeness.

1.10 Theoretical Framework

This study was informed by Experiential Learning Theory (ELT) by Kolb *et al.* (1999) as adapted by Arnold *et al.* (2006) and Educational Theory of Apprenticeship by Lave and Wenger (1991).

1.10.1 Experiential Learning Theory

Kolb's Experiential Learning Theory asserts that optimal learning occurs through a cyclical process of tangible experiences, reflective observation, abstract conceptualization, and active exploration. ELT is a methodology that enables the evaluation of an individual's talents and job needs in a language that facilitates the measurement of their comparability.

This research is based on Experiential Learning Theory (ELT) formulated by David A. Kolb in 1984. The theory posits that learning is a process in which knowledge is generated through the transformation of experience. This is especially relevant in practical training environments like industrial attachments, where trainees do actual tasks, reflect on their actions, and implement acquired knowledge in novel contexts. Experiential learning is a direct engagement with the subject of study, rather than passively contemplating the experience or evaluating potential actions around it.

The Experiential Learning Theory posited by Kolb *et al.* (1999) is relevant to the research as it offers a foundational framework for understanding the learning process through experience, particularly in practical and vocational contexts. Kolb *et al.* (1999) characterize experiential learning as a process in which knowledge is produced by transforming experience. This theory posits that effective learning transpires through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. In the context of TVET, industrial attachment offers trainees the opportunity to engage in genuine work environments, enabling them to apply theoretical knowledge to practical tasks and thereby experience all four stages of Kolb’s learning cycle.

The fundamental principles of Experiential Learning Theory encompass a four-stage learning cycle that facilitates successful learning. Concrete Experience (CE) refers to the initiation of learning by direct engagement in a task or activity. Reflective Observation (RO): Trainees examine and contemplate their experiences from many viewpoints. Abstract Conceptualization (AC): Trainees generate new ideas or alter current concepts depending on their reflections. Active Experimentation (AE) involves trainees applying their newfound knowledge to real-world scenarios, thereby testing their learning.

TVET programs aim to develop graduates with practical and employable skills, while industrial affiliations serve as a crucial connection between theoretical education and practical application. Trainees participate in practical experiences within organizations, addressing real tasks and challenges, which they analyse and conceptualize to improve their understanding and performance (Kolb *et al.*, 1999). This method promotes improved learning and skill acquisition as trainees actively utilize their knowledge in new situations.

The ELT framework emphasizes the importance of incorporating structured industrial attachment methods in vocational education, asserting that learning is most successful through active engagement with authentic tasks. In Kenya, where the need for proficient technical graduates is rising, the implementation of ELT can inform the design and execution of industrial attachment programs that enhance vocational skills development for TVET trainees.

Furthermore, the concept underscores the need of trainee-centred approaches, in which trainees take ownership of their educational experience. This aligns effectively with the

competency-based education frameworks established in Kenya's TVET institutions, highlighting outcomes-oriented learning and practical proficiency (Makworo, Muchiri, & Nyongesa, 2021). By employing Kolb's Experiential Learning Theory, educators and policymakers can create industrial attachment programs that are reflective, interactive, and developmental, rather than merely observational or routine, thereby promoting substantial occupational skill acquisition. Kolb emphasized that learning is cyclical and dynamic, characterized by ongoing progression through various stages, shaped by the trainee's personal involvement and the surrounding environment.

This study examines the impact of industry attachment practices on the development of vocational skills among TVET trainees in Kenya. The induction process familiarizes trainees with the corporate environment, safety regulations, duties, and expectations. This phase enables trainees to interact directly with the workplace environment, establishing the foundational experiences upon which further learning is constructed.

Trainees are prompted to utilize classroom information in practical scenarios when assigned pertinent, skill-oriented activities. While executing duties, people start to develop new thoughts and professional notions (abstract conceptualization). These are subsequently evaluated through ongoing task engagement (active experimentation), resulting in skill acquisition and enhanced occupational proficiency.

Effective supervision offers the necessary feedback and support for reflective observation. Through structured reflection, trainees can evaluate their experiences critically, identify errors, and acquire insights. This introspective process is essential for the internalization of occupational competencies and professional conduct.

Experiential Learning Theory offers a comprehensive framework for understanding how industrial attachment enhances skill learning in TVET trainees. It underscores the significance of organized experience (induction), pertinent involvement (task relevance), and directed reflection (supervision) in facilitating trainees' conversion of experience into applicable vocational proficiency. The idea robustly endorses the examination of how various elements of industrial attachment facilitate the comprehensive development of trainees.

Learning is a process in which TVET trainees participate in industrial attachments, reflect on these experiences, and use their insights to develop vocational skills. The industrial attachment methods provide tangible experiences for the TVET trainees. Through practical experience in authentic environments, they immediately engage with the skills and knowledge pertinent to their discipline. Following the industrial attachment experiences, trainees may participate in reflective practices. They could contemplate their experiences, recognize the talents they have learned, and evaluate how these skills enhance their overall learning and professional growth. Trainees may subsequently participate in abstract conceptualizing by generalizing their experiences.

Trainees may create theories or frameworks to comprehend the practical skills they have attained and their relevance to overarching concepts within their discipline. During active experimentation, trainees can use the vocational skills learned during industrial attachment to novel settings upon entering the job. This may entail the use of novel strategies or problem-solving methodologies derived from their experiences. Trainees exhibit diverse learning styles. For instance, certain trainees may prefer experiential learning (diverging), whilst others may prioritize theoretical comprehension

(assimilating), hence influencing their engagement with the attachment techniques. Active participation in industrial attachment methods is predicated on the conviction that learning necessitates interaction, which is underscored throughout the industrial attachment experience. Trainees who engage actively, inquire, and solicit feedback are likely to gain greater advantages from their experiences than those who merely observe passively.

This study acknowledges that learning is a continuous process, and industrial attachment experiences facilitate long-term skill development, allowing trainees to progressively enhance their foundational knowledge over time. Experiential learning promotes the notion of deriving insights from failure, and trainees on attachment should perceive failures as opportunities for development and advancement. This can be determined by the manner in which trainees react to obstacles or failures experienced during their industrial assignment. This study evaluates how vocational skills gained during industrial attachment apply to real-world scenarios and their effectiveness in fulfilling industry demands, as well as their impact on trainees' employability and professional achievement.

While Experiential Learning Theory (Kolb, 1984) provides a dynamic model for understanding how individuals learn through experience, it is not without limitations. ELT focuses mainly on the trainee’s internal process of learning, often overlooking the social and cultural context in which learning takes place, it assumes that all trainees are equally motivated and reflective, which may not always be the case, especially in structured environments like industrial attachment. ELT does not account for power

relationships between trainees and supervisors, which may affect participation and feedback during industrial attachment (Sherman, *et al.,* 2020).

1.10.2 Educational Theory of Apprenticeship

The apprenticeship educational philosophy, known as Situated Learning philosophy, was formulated by Lave and Wenger in 1991. Contemporary researchers have expanded upon their research, particularly with TVET, work-based learning, and the cultivation of 21st-century skills (Manoah,2020; Mboya,2020). This approach is based on the premise that optimal learning transpires through active participation in real-world tasks, facilitated by the mentorship of a more experienced individual. This concept is based on constructivism and situational learning. It posits that trainees attain knowledge and skills most effectively by participating in genuine tasks under the supervision of seasoned mentors. This paradigm integrates practical experience with oversight, highlighting learning through engagement in genuine tasks.

This is pertinent to vocational education and training settings, such as industrial attachment programs, where experiential learning is essential. The fundamental principles of the theory encompass modelling, wherein trainees witness proficient persons executing activities, facilitating the internalization of procedures and standards. Scaffolding is providing trainees with direction and feedback that diminishes progressively as their competency improves, facilitated by supervisors. Legitimate Peripheral Participation - Novices initially undertake straightforward, pertinent duties and progressively take on increasingly intricate responsibilities; Reflection and Coaching -Trainees develop through feedback, oversight, and reflective practices that enhance comprehension and proficiency.

This study's objectives are precisely aligned with the principles of the Educational Theory of Apprenticeship: The induction process (Modelling) functions as a vital gateway into the professional world. The theory posits that modelling transpires as trainees watch and assimilate task execution, organizational expectations, and workplace conduct. An effectively organized induction familiarizes trainees with the corporate culture and establishes a basis for skill enhancement.

The pertinence of allocated work (Legitimate Peripheral Participation) during the internship must be directly correlated with the trainee's field of study. When tasks are significant and progressively escalate in complexity, trainees engage actively and authentically, reflecting legitimate peripheral engagement. This advancement improves their professional skills and self-assurance.

The Supervision Role (Scaffolding and Coaching) include providing scaffolding through direction, assistance, and feedback. As trainees become increasingly proficient, this assistance is less, enabling them to operate autonomously. Coaching enhances the learning process and enables trainees to evaluate their performance and improve their abilities accordingly.

The Educational Theory of Apprenticeship offers a comprehensive framework for analysing the impact of industrial attachment practices on vocational skill development. It elucidates the processes by which trainees acquire knowledge through observation, participation, mentorship and reflection on their experiences. This theory provides a good framework for analysing the impact of induction, task relevance and supervision on skill development in TVET trainees.

The Educational Theory of Apprenticeship (Situated Learning Theory) provides valuable insights into workplace learning, although it also has certain limitations. Although it highlights the social and communal dimensions of learning, it often minimizes the individual's cognitive growth and internal knowledge processing. The idea inadequately elucidates the integration of formal education with workplace learning, which is essential in a TVET context where classroom theory and industry practice must converge. Theory of apprenticeship posits that advancement occurs organically within a community of practice; yet, in practical environments such as industrial attachments, systematic supervision and evaluation are essential. Despite its limitations, the apprenticeship model is considerably improved and rendered more holistic when combined with Kolb's Experiential Learning Theory (ELT).

Experiential Learning Theory (ELT) and the Educational Theory of Apprenticeship synergistically enhance this study when implemented together. The two theories augment the comprehension of skill acquisition via industrial attachment. Experiential Learning Theory is utilized as the principal theoretical framework because of its extensive applicability and robust empirical basis. The Educational Theory of Apprenticeship serves as a supplementary framework, particularly in elucidating the functions of supervision and direct instruction during attachment.

The two theories collectively offer a thorough framework that reconciles individual cognitive processes (ELT) with social and cultural learning contexts (Apprenticeship Theory), connects TVET learning with workplace practices, and emphasizes personal reflection and guided participation as essential for acquiring vocational skills during industrial attachment.

1.11 Conceptual Framework

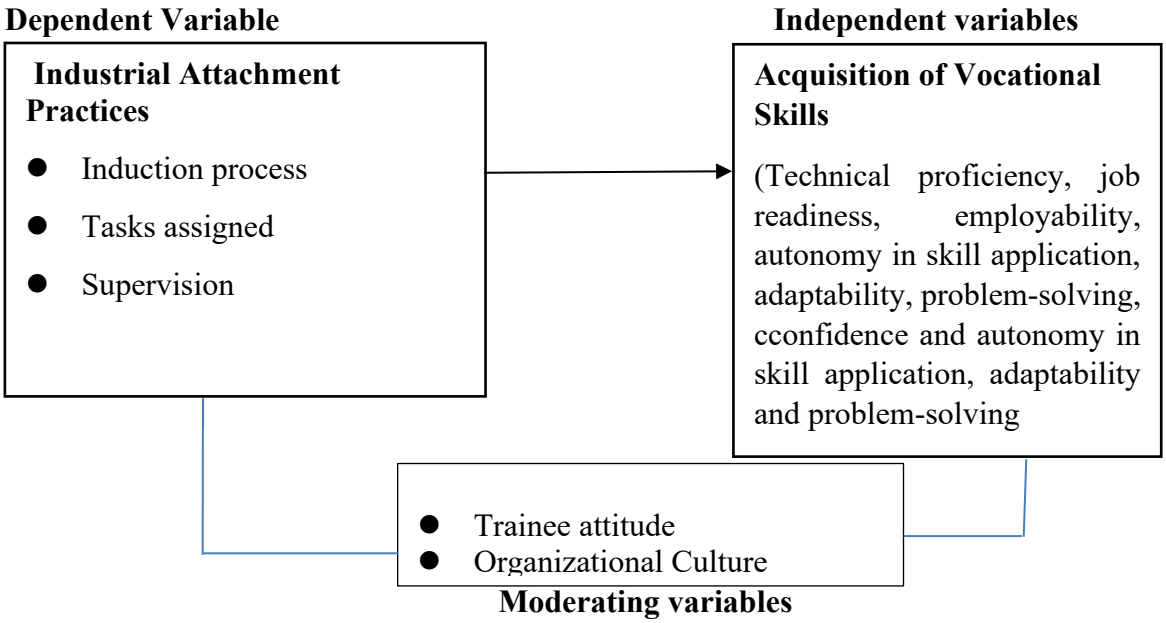
The conceptual framework shows the interrelationship among the independent, moderating and dependent variables. The independent variables are industrial attachment practices measured by; tasks assigned (alignment with field of study, skill application, hands-on experience) induction process (orientation, safety and role clarity, progressive familiarization with new tasks, tools and workplace expectations) and supervision (mentorship, regular guidance, feedback, monitoring and support) during attachment. The dependent variable (technical proficiency, job readiness, practical competence, employability, confidence and autonomy in skill application, adaptability and problem-solving). Trainee's technical competency was measured based on indicators such as technical skills, problem-solving ability, teamwork and adherence to safety standards.

trainee attitude (motivation to learn, openness to feedback, confidence and self-efficacy, attitude toward change, responsibility and accountability and Organizational culture (beliefs, norms, behaviors, leadership style, communication patterns work environment mission and vision) moderates the relationship between each independent variable (Induction, Tasks assigned, Supervision) and acquisition of vocational skills such that the relationship is stronger for trainees with more positive attitudes and in organizations with more supportive/formal structures.

This framework suggests that effective industrial attachment practices positively influence vocational skill acquisition, and that the effect can be moderated by the attitude of the trainee and the organizational culture within the host organization.

These relationships are conceptualized in Figure 1.1 below.

Figure 1. 1: Conceptual Framework



1.12 Operational Definitions of Terms

Applied Science Courses: Applied science courses refer to disciplines that integrate scientific theory with practical skills to prepare trainees for specific professional or technical careers. They emphasize hands-on training, experimentation, and the use of scientific methods to address industry and community needs. e.g Food Science and Technology, Environmental Science Environmental Health, Medical Laboratory Technology, Nutrition and Dietetics and Agricultural Science / Agricultural Engineering

Assessors: Lecturers or trainers that advise trainees during the learning process and assess trainees on industrial attachment.

Induction: Refers to an ongoing series of structured activities and support mechanisms provided by the host organization throughout the attachment period to enhance the trainee's integration, learning, and skill acquisition. Includes initial orientation, regular

guidance, feedback, and progressive familiarization with new tasks, tools, and workplace expectations.

Industry: Refers to private sector companies (e.g., manufacturing firms, hotels, ICT companies, agricultural farms), public institutions (e.g., government departments, parastatals), and non-governmental organizations involved in technical or professional services where a trainee undertakes industrial attachment.

Industry Supervisor: Refers to the person at the industrial attachment site who is directly responsible for the trainee on attachment and his/her substantive work experience.

Industrial Attachment: Refers to placement of TVET trainees in a relevant industry for the purpose of acquiring vocational skills in their area of training.

Industrial Attachment Practices: Refers to activities at the industry whose quality contributes to or hinders skill development during industrial attachment. These include induction process, supervision, and tasks assigned.

Influence: Refers to how industrial attachment practices such as induction, tasks assigned, and supervision affect the acquisition of vocational skills among TVET trainees.

Organizational Culture: Workplace identity and culture prevailing in the industry which includes learning intangible attributes like teamwork, time management, and professionalism. They shape the social and psychological environment of an organization and it teaches trainees how to be professionals practices and,

Tasks Assigned: Refers to the specific duties or responsibilities given to trainees during industrial attachment, intended to provide practical experience and develop relevant vocational skills aligned with their vocational area.

TVET Trainee: An individual in a TVC institution pursuing a diploma course or higher diploma on industrial attachment.

Vocational Skills: Refers to competencies which TVET trainees acquire during industrial attachment to enable them to perform a given task in the industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on industrial attachment practices and vocational skills acquisition. It begins by looking at concept of industrial attachment in TVETS, relationship between industrial training and skill development, industrial attachment induction process on acquisition of vocational skills, induction process on acquisition of vocational skills, supervision during industrial attachment and synthesis of literature and research gaps. The literature further looks at the theoretical framework and conceptual framework upon which this study was based.

An extensive literature with up-to-date and reliable reference was undertaken. The sources of literature used in this study included theoretical literature, empirical and general literature as documented in; paper-based journals, books, electronic journals, conference proceedings, relevant databases (ERIC, ISAP), websites of research papers and online education journals. The various bibliographies of articles and journals provided rich sources for further literature review.

2.2 Concept of Industrial Attachment

Industrial attachment refers to a structured, practical training period where TVET trainees are placed in real workplace environments to apply and enhance the skills learned in their institutions. It serves as a bridge between classroom-based learning and hands-on occupational experience, allowing trainees to acquire, reinforce and refine vocational skills that are directly relevant to their trade or profession.

Numerous countries have implemented industrial attachment to enhance their technological foundation. Most schools and universities in the United States facilitate internship programs as part of their trainee support services through the career planning and placement office. Experience is increasingly a crucial factor in the recruitment of new professionals in the labour market (Baynit, 2021). This tendency has necessitated the acquisition of work experience through Industrial Attachment for new entrants into the labour market in the United States, United Kingdom, and other nations (International Energy Agency, 2022).

Countries such as France and Germany have successfully revitalized their economies through a meticulously structured technical education system known as the "dual system," which has been used for over a century. This method establishes robust connections between the industry and training institutions (Ayieko *et al.*, 2023). The success of Asian and Pacific nations is ascribed to significant educational reforms that incorporated industrial attachment.

Yirenkyi, *et al.* (2023) asserts that graduate unemployment in Ghana is a societal concern and a significant challenge for succeeding governments, who have employed various tactics, including the development of special projects and programs. Consequently, polytechnics have organized their industrial training programs to assign trainees to industry-related sectors, enabling exposure to the work environment, acquisition of vocational skills and knowledge pertinent to their fields, awareness of technological advancements in the industry, and differentiation from university peers (Dondofema, 2020).

Training in agricultural colleges in Zimbabwe incorporates experiential learning through farm attachments, aimed at exposing trainees to the realities of the workforce (Dondofema, 2020). This activity allows trainees to use the theoretical knowledge and technical skills acquired. Trainees should engage in both reflective and practical training based on real experiences rather than remaining theoretical (Coykendall *et al.,* 2024). This enhances professional practice as the graduate is more capable of making meaningful contributions to society and the workplace.

Technical training in Kenya commenced in the early 1900s with the establishment of the local industrial training depot in Nairobi by missionaries (United Nations Development Programme (UNDP) Ghana, 2023). Vocational education in Kenya originated during the colonial era, largely aimed at providing Kenyans with fundamental technical skills to fulfil colonial objectives. Following independence in 1963, Kenya prioritized the enhancement and development of education, including the establishment of Technical and Vocational Education and Training (TVET) schools to address the increasing demand for skilled labour. Initiatives like Kenya Vision 2030 and the Technical and Vocational Education and Training Act of 2013 have emphasized the significance of TVET in national advancement. These policies advocate for industrial attachments to improve vocational skills and employability.

Although TVET possesses the capacity to substantially enhance the nation's economic development, it encounters certain problems that must be resolved for its success (Ministry of Education, Kenya, 2024). The challenges encompass a deficiency of training

materials, inadequate perception and acknowledgment of TVET, ineffective resource mobilization and distribution, insufficient and substandard equipment and infrastructure, misalignment of training materials with occupational standards, insufficient emphasis on industrial attachments by the college, and a lack of trainers proficient in utilizing existing materials during practical training sessions. Instructors must possess pedagogical expertise to guarantee that the CBET curricula is grounded in practical experience and industrial exposure rather than theoretical knowledge (Geda, 2021).

The fundamental element of competency is that an individual is deemed incompetent if he cannot use his knowledge and abilities in the workplace, irrespective of the extent of his knowledge (Mwelwa, 2023). Employers in various sectors see that freshly certified graduate trainees lack the necessary qualifications for employment without additional training; thus, competence-based standards address objections regarding the inadequacy of education and training programs in fulfilling industry demands.

The efficacy of industrial attachment strategies has not been rigorously assessed. Limited research on industrial attachment has addressed topics such as the quality of the experience and the effectiveness of methods employed in skill development throughout the attachment time (Kenya Institute of Administration, 2020). As per Geda (2021), it is essential to correlate academic curriculum with the professional environments to which trainees are assigned. Olayo (2022) emphasizes the necessity for alignment between the technological resources utilized by college trainees and those employed in the sector. Resource discrepancies impede the learning process and reduce the possible advantages for the trainee. Alao *et al.* (2022) emphasizes the necessity of fostering good attitudes

towards experiential learning in the corporate sector. Trainees must be thoroughly engaged and ready to apply and contemplate the connection between academic learning and the professional realm.

The alignment of curricula in TVET institutions with the abilities required by employers for optimal job performance is essential for ensuring that industrial attachment experiences effectively enhance employability skills (Jahonga, 2020). Oteki and Ouko (2023) report that 82 to 97 percent of final-year Bachelor of Purchasing and Supply Chain trainees had enhanced abilities post-attachment, particularly in self-confidence, time management, verbal communication, and individual initiative. Trainees on attachment should endeavour to attain pertinent market competencies, including communication proficiency, problem-solving abilities, time management, teamwork and collaboration, flexibility, industry-specific skills, and self-efficacy (Kithinji, 2022).

Training institutions are required to organize, assign trainees, and establish assessment methods in accordance with the learning activities (Mwelwa, 2023). Moreover, industrial connection facilitates a seamless transfer for trainees from academia to the professional sector. Trainees are informed about ever evolving technology, which complicates the ability of educational institutions to obtain all necessary training equipment. Likewise, TVETs assess industrial attachment programs and, if warranted, develop intervention programs that are then re-evaluated.

Industrial attachment programs serve as a promotional platform for diverse tertiary institutions. Tertiary and higher education institutions, especially TVETs, should

produce proficient graduates equipped to fulfil industrial demands. Rono and Mwaura (2020) assert that vocational skills and exposure to the work environment are the primary factors influencing employers' decisions to deploy trainees in Kenyan TVET institutions.

Geda (2021) recognize the challenges faced by training institutions in obtaining the specialized equipment necessary to provide quality training that ensures graduates remain pertinent to agricultural development. Agricultural enterprises necessitate graduates to oversee production and processing operations, maintain and repair machinery, ensure food quality and safety, and engage with key players in the innovation process (Musyimi, 2021). Industrial attachment programs must be structured to facilitate the application of theoretical knowledge while acquiring practical competencies (Mwaura *et al.*, 2022). Unsuitable designs for a program constrain critical reflection and the development of necessary competencies (Rono & Mwaura, 2020).

A favourable perception arises when trainees can correlate practical knowledge acquired during their industrial placement with theoretical concepts, whereas an unfavourable perception emerges when trainees recognize discrepancies between classroom-taught operational issues and actual practices encountered in the field (Olayo, 2022). This disparity may undermine trainees' goals, dreams, and long-term aspirations for a profession (Mboya,2020).

Industrial attachment experiences should be systematically evaluated periodically to ensure alignment with the evolving demands of the job market (Jahonga, 2020; World Bank, 2022). Coykendall *et al*. (2024) asserted that the alignment of current TVET

programs with labour market demands is mostly driven by the necessity for vocational skill development and exposure to the work environment, which motivates firms to employ trainees. Training institutions actively facilitate the placement of trainees to prevent suboptimal choices that may result in inadequately qualified graduates for the workforce (Baynit & Ngussa, 2021).

Technical Vocational Education has been recognized as an effective training technique that may provide society with technical, soft and pedagogical skills hence fostering the expansion of both informal and formal sectors, particularly in developing nations (Ramadhani and Muya, 2025). In Kenya, the technical and vocational education provided prior to independence fostered a negative perception, resulting in a limited number of trainees choosing this educational path (Nyongesa & Makokha, 2020).

Kenya supports Technical and Vocational Education and Training (TVET) institutions by providing facilities, equipment, recruiting qualified trainers, and subsidizing tuition rates to enhance affordability for the youth. For example, in Kakamega County, the County Government offers training facilities and scholarships to Technical and Vocational Education and Training institutions. This effort seeks to equip a maximum number of trainees with professional technical skills (Kakamega County TVET study, 2023). Sessional Paper No. 1 of 2005: A Framework for Education, Training, and Research mandates the establishment of at least one National Polytechnic in each county and a TVET institution in every constituency. The Kakamega County Director of Vocational Education Office Report (2024) shows that Kakamega County has 32 accredited TVET institutions. This includes 9 private Technical and Vocational

Colleges/Centres (TVCs), 9 governmental TVCs, which encompass 2 National Polytechnics, and 12 Vocational and Technical Centres (VTCs).

Education devoid of vocational skills is inadequate for an individual to competently fulfil responsibilities in any professional setting (Meta,2022). Employers with prior awareness of trainees' expectations will be better equipped to facilitate their effective integration into the sector. A perceived discrepancy exists between the competencies attained by graduates and the requirements of industries (Mwelwa,2023). Musyimi (2021) asserts that certain elements of every profession cannot be acquired in the classroom, but rather through practical experience in the field.

2.3 Influence of Industrial Training on Skill Development

Industrial training enables individuals to implement theoretical concepts acquired in school programs in practical situations. This actual application reinforces comprehension and enhances learning by offering meaning and significance to theoretical notions. Trainees cultivate a profound understanding of the practical applications of their academic knowledge through experiential learning, consequently enhancing their total skill competency.

Industrial training provides individuals with opportunity to acquire and enhance vocational skills crucial for success in their selected profession. Trainees acquire practical experience in employing industry-specific equipment, techniques, and procedures by participating in genuine work activities and projects. Vocational skills are frequently tailored to specific industries and cannot be entirely obtained by classroom

education alone, rendering industrial training an essential aspect of skill development (Anjum, 2020).

Industrial training familiarizes trainees with industry-specific procedures, standards, and conventions observed in the workplace. Trainees acquire knowledge of task execution in practical environments, encompassing optimal practices, safety regulations, and quality benchmarks. This exposure aligns trainees' skills and abilities with industry expectations, enhancing their competitiveness and employability upon training completion (Geda, 2021).

Besides technical skills, industrial training also fosters the enhancement of soft skills including communication, collaboration, problem-solving, and adaptability. Trainees engage with colleagues, supervisors, and clients in professional environments, refining their interpersonal skills and emotional intelligence. These interpersonal abilities are crucial for successful collaboration, leadership, and professional progression across all sectors (Nyongesa & Makokha, 2020).

Industrial training improves employability by providing individuals with pertinent skills, practical experience, and industry knowledge valued by employers. Bor, *et al. (*2024) asserts that companies prioritize individuals possessing practical experience and a proven capacity to implement academic knowledge in real-world situations. Industrial training facilitates the transition from education to employment, enhancing individuals' prospects of obtaining significant professional opportunities (Orodho, 2020).

Industrial training cultivates a culture of lifelong learning and professional development by promoting curiosity, adaptability, and a growth mind-set. (Dondofema *et al.*, 2020).

Trainees adopt new technologies, techniques, and industry trends, establishing themselves as lifelong trainees who remain pertinent in a swiftly changing employment market. Industrial training establishes a basis for ongoing skill enhancement and career progression throughout people' professional trajectories.

Industrial training acts as a catalyst for skill enhancement by offering practical experiences, exposure to industry standards, and possibilities for personal and professional advancement. The interplay between industrial training and skill development is mutually beneficial, with each enhancing the other to equip individuals for success in their selected career trajectories (Alao, 2022).

Vocational skills are defined technical competencies that are quantifiable and tailored to certain occupations, encompassing a wider array of capabilities that integrate technical expertise with interpersonal and cognitive skills essential for adeptly managing real-world scenarios. Vocational skills comprise a wider array of competencies associated with practical, hands-on jobs or activities. They entail the utilization of information, techniques, or skills in practical scenarios or contexts. Vocational skills encompass both hard talents and soft abilities, including problem-solving, critical thinking, adaptation, and communication. Vocational skills are cultivated by experience, practice, and exposure to many settings, typically encompassing a blend of technical expertise, interpersonal skills, and cognitive ability. Education must prepare trainees with competencies necessary for competition in a global economy, encompassing critical thinking, problem-solving, and creativity (Anjum, 2020).

During industrial attachment, participants frequently gain specialized technical and vocational skills pertinent to their subject of study or the industry in which they are positioned. The skills acquired can differ significantly based on the type of attachment, allocated tasks, and industry area. Vocational skills denote practical, job-specific competencies that enable individuals to operate proficiently in diverse crafts and professions (Bor, 2021). In the realm of Technical and Vocational Education and Training (TVET) institutions in Kenya, these competencies are cultivated across several disciplines. In technical schools like electrical and mechanical engineering, trainees develop skills in wiring, circuit installation, machine operation, mechanical drawing, and tool handling. Automotive engineering imparts expertise in car diagnostics, engine repair, and automotive electronics. Construction programs cultivate skills in masonry, carpentry, plumbing, and architectural drafting.

Service-oriented disciplines such as catering and hospitality focus on food preparation, customer service, and event planning, while hairdressing and beauty therapy schools train trainees in hair styling, facials and nail care. In business studies, vocational competencies encompass bookkeeping, entrepreneurship, and office administration. The increasing demand for digital literacy has rendered ICT programs indispensable, enabling trainees to acquire skills in coding, database management, graphic design, and networking. Agriculture-focused TVET courses develop skills in food production, animal husbandry, and irrigation, whereas environmental studies advocate for sustainable techniques such as waste management and landscaping.

Vocational skills are generally cultivated through a blend of classroom education, practical training, and, crucially, industrial attachment, which offers real-world exposure

and skill application. This highlights the significance of efficient industrial attachment techniques in reconciling theoretical knowledge with practical vocational proficiency, which is key to the objectives of this study. Industrial attachment connects academic learning with the labour market, fostering adaptability, work preparedness, and professional conduct. Industrial attachment constitutes a component of the final grade or qualification criterion in Technical and Vocational Education and Training (TVET) institutions (Baynit & Ngussa, 2021).

2.4 Induction Process on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

The shift from educational settings to professional environments for TVET trainees is frequently facilitated by industrial attachment programs. An essential element of this transformation is the ongoing induction process, which acclimates trainees to workplace expectations, tools and procedures.

Induction generally encompasses safety protocols, a delineation of daily activities, job expectations, company culture, expectations during the attachment period, assignment of supervisors, and the duration of the attachment, all of which are essential for comprehending and functioning in a practical work environment (Mousa & Othman, 2023). Induction includes the first orientation as well as ongoing guidance, feedback, and gradual acclimatization to new duties, tools, and workplace expectations over the attachment period.

Osumba and Wekesa (2023) discern that prior to commencing industrial attachment, host industry institutions typically deliver thorough induction to acclimate trainees to the workplace environment. The degree to which trainees are properly oriented and prepared

for the attachment experience might influence their performance, as induction and preparation sessions can enhance trainees' confidence and efficacy.

A systematic, comprehensive, and consistent induction process is favourably associated with the effective assimilation of TVET trainees into the workplace during industrial attachment (Mousa & Othman, 2023). Trainees who participate in a thorough induction process will demonstrate enhanced adaptation to workplace culture, improved comprehension of job roles and responsibilities, and greater confidence in task navigation compared to those who experience limited or insufficient induction (Issa & Muya, 2025).

Attachments have consistently faced issues, particularly sexual harassment of trainees, extortion and intimidation by employees, bad attitudes from supervisors, and unrealistic demands from companies, among others (Mwaura *et al.*, 2021). Trainees are consequently mentally, psychologically, and physically stimulated throughout induction. Bauer, Erdogan, and Truxillo (2023) found that early preparation of TVET trainees establishes an equitable platform for competition with university trainees and other training institutions, ensuring that first orientation at host institutions is not overlooked.

Research conducted in Tanzania by Baynit and Ngussa (2022) indicates that attachment programs featuring robust induction frameworks markedly improve trainees' technical preparation and career preparedness. Jahonga (2020) emphasized that majority of trainees require significant time to get placements for attachment. Delayed reporting to the industry and the absence from initial induction are closely interconnected, as tardy reporting frequently results in the incapacity to engage in preliminary programs. Absence of essential knowledge might manifest as a prolonged adjustment period, diminished

readiness to execute duties, adverse effects on performance, and the forfeiture of opportunities to cultivate connections with colleagues and supervisors. To address these problems, industries can contemplate flexible, organized, or repeating induction processes.

Mousa and Othman (2023) determined that trainees participating in well-organized attachment induction sessions generally possess a favourable impression of all aspects of work readiness and have a clear comprehension of industry supervisors' expectations. This highlights the essential function of introduction in influencing trainee attitudes and expectations. Inadequate or badly executed induction frequently results in misconceptions regarding the objectives of the attachment program (Patel, *et al.,* 2023). Consequently, certain trainees may misinterpret the experience as merely a vacation.

Furthermore, inadequate introduction has been associated with the impression of attachment as a money opportunity rather than an educational one (Geda, 2021). Biraori and Ouko (2023) noted that certain trainees concentrate exclusively on the financial rewards obtainable from the business, neglecting the priceless experiential learning intended by the program. From this viewpoint, the author's perspective coincides with these findings and underscores the pressing necessity for strong, unambiguous, and consistent induction processes to realign trainee attitudes with the intended educational goals of industrial attachment programs.

Nonetheless, although early preparation is underscored, Orodho (2020) articulates a more critical perspective, emphasizing that host organizations provide a generic induction that lacks specificity to a particular trade. This indicates a disparity between policy objectives

and actual execution. Recent studies highlight the substantial influence of organized induction on the development of vocational skills. Mwaura *et al.* (2022) discovered that organized pre-placement and continuous orientation sessions facilitated the rapid adaptation of TVET trainees to business contexts and the development of necessary competencies. Kigen and Ngeno (2024) established a statistically significant link between induction activities and the acquisition of employability skills among TVET trainees in Kisumu County. These data substantiate the wider assertion that continual induction is not solely administrative but also pedagogical, directly influencing learning outcomes.

TVETA (2023) indicates that planned orientation and ongoing mentorship are now standard requirements for all institutions and host organizations involved in industrial attachment. TVETA requires host organizations to not only place trainees but also to offer ongoing induction and orientation, designate qualified supervisors, and perform frequent evaluations to facilitate vocational skill enhancement. This continuous on-boarding procedure guarantees that trainees receive both technical and behavioural support from the outset. Research on competence-based TVET in Kenya indicates that the initial induction phase enhances competency acquisition by acclimating trainees to workplace equipment, safety measures, and job procedures (Osumbah & Wekesa, 2023).

Kolb *et al.* (1999) provide a robust theoretical foundation for effective induction, highlighting that trainees derive more benefits from engaging in abstract conceptualization prior to practical experience, as per their experiential learning model. Bandura's (1977) Social Learning Theory emphasizes the significance of modelling and expectation-setting during induction, indicating that trainees assimilate more efficiently

when exposed to role models and workplace standards. This is especially pertinent in influencing both the abilities and attitudes of trainees. Moreover, Wanous's (1992) Organizational Entry Theory supports this idea by claiming that induction alleviates entry-related anxiety and improves job preparedness of trainees (Smith & Brown 2024).

2.5 Tasks Assigned to Trainees during Industrial Attachment and Acquisition of Vocational Skills

Explicit task relevance aids trainees in comprehending the purpose and importance of their work, hence enhancing their dedication and effort towards job completion (Lu*, et al.,*2024). This perspective supports the notion that industrial attachments ought to be regarded not as standard tasks, but as meticulously designed experiences that significantly enhance trainees' professional growth. When trainees recognize tasks as meaningful, their motivation and persistence in completing such tasks are markedly improved.

Furthermore, establishing significant objectives increases the likelihood that trainees would feel a feeling of achievement and get fulfilment from their attachment experiences. This underscores the essential importance of deliberate planning in attachment programs. Jahonga's (2020) findings corroborate this perspective by highlighting that pertinent tasks facilitate the cultivation of competence, a fundamental psychological necessity.

UNESCO (2020) emphasizes the extensive socioeconomic benefits of vocational training, highlighting its favourable impacts on economic development, food security, and business productivity. The organization asserts that vocational training programs must be meticulously aligned with the specific skill requirements of companies. Chen *et al.* (2020) contends that the ongoing deficiency of skilled labour is due to antiquated and

rigid training methods in vocational and technical education. They argue that these institutions do not provide new entrants with the skills required in the contemporary labour market.

When tasks are regarded as significant and congruent with trainees' interests and objectives, they are more inclined to experience autonomy and ownership of their work (Mwelwa, 2023). Ownership enables trainees to perceive themselves as contributors instead than passive trainees. Furthermore, task relevance enhances social ties and collaboration among colleagues, nurturing a sense of relatedness and belonging inside the organization.

Organizations play a crucial role in crafting jobs that are meaningful, demanding and conducive to autonomy and feedback. Such assignments are essential for fostering rewarding attachment experiences that enhance skill development and job satisfaction. Musyimi (2021) assert that pertinent tasks, when integrated with essential work qualities, enhance trainee engagement and performance.

Mwaura *et al.* (2022) observe that although attachments are prevalent, discrepancies between curricular objectives and actual placements, particularly with low task complexity, hinder skill transfer. Trainees derive the greatest advantage from assignments that enable them to implement classroom information in practical situations. These challenges not only affirm their academic knowledge but also enhance their problem-solving and critical-thinking abilities. Consequently, the meticulous design of attachment assignments is a crucial factor in the overall efficacy of occupational training programs.

Mboya (2020) emphasizes the imperative to link duties allocated during industrial attachments with the educational objectives or professional aspirations of trainees. The study established that task relevance is a crucial determinant of trainee engagement and motivation. When tasks align with the trainees' academic discipline or prospective career trajectory, they exhibit more engagement in the learning process (World Economic Forum, 2025). These tasks foster a profound comprehension and facilitate the attainment of specialized information and skills vital for professional advancement.

Lee and Tan (2020) support this perspective by demonstrating that trainees are more inclined to engage actively, exhibit initiative, and demonstrate heightened commitment when they regard their assigned duties as meaningful and pertinent. Their research underscores that the characteristics of tasks substantially influence the quality of the attachment experience. Involving and pertinent tasks foster a sense of ownership and pride among trainees, hence improving their overall learning and workplace assimilation.

Roberts *et al.* (2021) underscore the theoretical foundations of task relevance in industrial attachments. Utilizing Bandura's social learning theory, Roberts and associates assert that individuals acquire knowledge through the observation, imitation and modelling of others' behaviours. They contend that relevant assignments offer trainees authentic learning experiences that reflect the professional milieu, hence augmenting skill acquisition. Phuthi and Mpofu, (2021) recognized that social learning is most efficacious when activities correspond with trainees' learning goals and career ambitions, since this correspondence enhances the probability of significant learning and performance.

Moreover, the cognitive apprenticeship model proposed by Collins, Brown, and Newman emphasizes the significance of genuine, contextually immersive learning. This approach posits that learning is maximized through active engagement in practical tasks under expert supervision. Roberts *et al.* (2021) contend that pertinent tasks during industrial attachment provide practical opportunities for trainees to assimilate professional practices, progressively enhance competence and cultivate metacognitive techniques essential for enduring professional success.

Mwangi and Mutinda (2022) assert that efficient feedback systems are crucial for improving task relevance during industrial attachments. The study established that when tasks are well aligned with training objectives and supplemented by prompt feedback, they not only improve learning outcomes for trainees but also yield quantifiable advantages for host firms. Mwaura *et al.* (2022) endorse this perspective by claiming that the allocation of significant and purposeful activities to trainees enhances both productivity and innovation inside the host businesses. They contend that engaging trainees in tasks associated with organizational objectives might enhance institutional performance while simultaneously offering a rewarding learning experience for the interns. Mwaura and colleagues assert that firms providing meaningful and engaging experiences are more likely to attract and retain high-calibre individuals, thus securing a competitive advantage in the industry.

Nyongesa and Makokha (2020) contribute to the discourse by examining the enduring influence of task relevance on the career trajectories of trainees. They assert that when industrial attachment responsibilities are significant and correspond with the trainees' fields of specialization, they contribute to establishing a robust professional foundation.

This subsequently affects future professional decisions, fosters lifelong learning, and facilitates career advancement.

The importance of work relevance is further emphasized by Rono and Mwaura (2020), who discovered that trainees engaged in tasks pertinent to their academic disciplines reported enhanced job satisfaction and skill advancement. They assert that the alignment between academic knowledge and practical tasks enhances the transfer into the workforce and enriches the overall learning experience.

Similarly, Lu, *et al*., (2024) empirically established a favourable correlation between task fit and trainee performance. Their research revealed that trainees who viewed their duties as congruent with their career goals exhibited improved performance and engagement. The findings indicate that task relevance is essential for both quick skills learning and optimizing the productivity of industrial attachments.

Lee and Tan (2020) established that when trainees on industrial attachment are given assignments that correspond with their career ambitions, it substantially enhances long-term professional development. Their research emphasizes that such alignment not only promotes immediate learning but also enhances career progression post-attachment, underscoring the enduring significance of pertinent task allocation.

The engagement of trainees during industrial attachments is substantially affected by their perception of the duties assigned to them. Bor (2022) contends that when trainees view their allocated work as significant and congruent with their professional aspirations, their engagement levels rise substantially. Otieno and Odundo (2021) corroborate this by presenting empirical evidence that trainees perceiving their assignments as meaningful

exhibit greater proactivity and motivation, resulting in improved learning outcomes and more favourable overall attachment experiences.

The significance of job relevance transcends the individual trainee, influencing organizational outcomes as well. Roberts *et al.* (2021) assert that firms that allocate significant and pertinent work to their trainees have enhanced productivity, increased innovation, and efficient knowledge transfer. They contend that these methods assist firms in attracting and retaining high-potential people, highlighting the strategic significance of aligning trainee responsibilities with company goals.

Mwaura *et al.* (2022) examined the impact of task assignments during industry attachments on the development of employability skills among trainees from TVET institutions in Nairobi County. Their findings indicated that 37.6% of respondents strongly concurred and 49.7% concurred that the prescribed tasks fostered their creativity and invention, while a negligible fraction disagreed. The research revealed that the competencies gained during attachment significantly enhanced employability.

2.6 Supervision during Industrial Attachment on Acquisition of Vocational Skills

The mandatory industrial attachment in Technical and Vocational Education and Training (TVET) curricula plays a vital role in connecting theoretical education with practical application. Makworo *et al.* (2021) assert that industrial attachment enables trainees to apply classroom information to practical situations, hence improving their readiness for work and additional training. This practical learning is crucial for providing trainees with the skills required by the ever-evolving and competitive labour market.

Nduduzo and Lungisani (2021) contend that the anticipated advantages of industrial attachment can only be fully actualized with genuine and continuous oversight of trainees during the attachment duration. These writers assert that successful supervision guarantees trainees encounter a diverse array of tasks and responsibilities that encompass the entirety of their specialization. They believe that significant involvement in pertinent organizational contexts is essential for attaining the goals of industrial training.

In the Kenyan context, the industrial attachment component of TVET programmes aims to link trainees with industries and businesses, enabling them to gain practical vocational skills, cultivate professional work ethics, and engage with contemporary technologies, machinery, and equipment typically presented in classroom environments. Biraori and Ouko (2023) note that the absence of formal grading and certification of industry attachments by the Kenya National Examinations Council (KNEC) indicates a systemic oversight. Their analysis indicates that the lack of assessment methods may result in reduced focus on the supervision and evaluation of trainees' practical learning experiences.

Supervision is essential for the success of industrial attachment. McDonald (2022) underscores the necessity for supervisors to adeptly fulfil their tasks, particularly due to the generally brief nature of attachment periods. The author emphasizes the intricacy of providing trainees with pertinent, task-focused instruction within a constrained timeframe. Olayo (2022) characterizes industrial attachment supervision as the oversight and assistance provided by appointed individuals within the host organization. Supervisors are tasked with connecting trainees' assignments with their educational goals, providing mentorship, assessing performance, and facilitating chances for ongoing

development. These viewpoints highlight the imperative for organized, deliberate oversight to guarantee that industrial attachment achieves its educational and professional development objectives.

Rwamu (2020) asserts that industry-based training is essential in vocational education, as it furnishes trainees with experienced supervisors who provide guidance, assistance, and feedback during the industrial attachment time. This guidance is crucial in developing trainees' practical skills and professional conduct. Wahungu *et al.* (2023) substantiate this perspective, indicating that the extent of support and supervision provided during attachment markedly affects a trainee's total performance. They assert that effective supervision requires the provision of explicit instructions, regular feedback, and continuous assistance. Conversely, insufficient supervision might impede trainees' capacity to acquire and implement vocational skills proficiently.

Tahir and Ekmekcioglu (2022) states that supervision during industrial attachment is typically organized around established learning objectives collaboratively formulated by the educational institution and the host firm. These objectives direct the supervision process and establish a framework for the skills, information, and abilities the trainee is anticipated to acquire. Jahonga (2020) emphasize the advantages of proficient supervision during industrial attachment, noting that it enhances learning, presents trainees with authentic difficulties, fosters networking opportunities, and bolsters employability prospects. From an organizational standpoint, overseeing interns can generate innovative concepts, facilitate talent cultivation, and function as a conduit for recruiting adequately prepared graduates.

Notwithstanding these benefits, obstacles persist. Makworo, *et al.* (2021) note that supervision may be impeded by discordant expectations between supervisors and trainees, insufficient resources or time for supervision, communication obstacles, and the challenge of reconciling academic knowledge with practical experience.

To enhance the efficacy of supervision during industrial attachment, McDonald (2022) underscores the necessity for firms to provide explicit guidelines, provide supervisor training, cultivate open communication channels, and consistently evaluate the progress of trainees. Furthermore, McDonald asserts that trainees should proactively seek assistance, solicit criticism, and reflect on their learning experiences to facilitate their progress.

Nduduzo and Lungisani (2021) assert that the efficacy of supervision during industrial attachment should depend on suitable assessment methods that include feedback from trainers, trainees, and industry supervisors. This method guarantees that evaluations yield significant advantages and enhance the trainees' educational experiences. Kipngetich, *et al.* (2025) contend that insufficient knowledge in interpreting logbook sections and a misapprehension of the assessment domain may result in cursory remarks by supervisors, hence undermining the fairness and precision of the assessment process.

Waiganjo (2023) recommends comprehensive training for all assessors in the utilization of assessment tools to mitigate discrepancies in assessment results that may result from variations in assessor credentials. The partnership between training institutions and industry stakeholders is essential, as Phuthi and Mpofu (2021) contend, to guarantee that

both training and industry viewpoints are integrated in tackling these assessment difficulties.

Olayo (2022) emphasizes that for the attainment of effective and efficient training in Technical and Vocational Education and Training (TVET), industry-based supervisors must enhance their involvement. He emphasizes the significance of a robust collaboration between industry and training institutions, pushing for the assignment of trainees to proficient and specialized supervisors with the requisite experience to achieve TVET objectives.

Notwithstanding the acknowledged advantages of the industrial attachment program for both trainees and the industry, Kinyanjui (2021) observed that securing placements for trainees in industrial work experience continues to be a barrier, as some companies exhibit reluctance to accept them. Issa and Muya (2025) supports for enhanced employer participation in facilitating experiential learning, underscoring the necessity for companies to accept trainees who possess structured, classroom-based information, enabling them to apply it in practice. The study asserts that even when trainees are admitted, they frequently encounter little supervision or evaluation.

Mwaura *et al.* (2022) note a decrease in the quality of TVET graduates in recent years, owing in part to inadequate work experience and insufficient oversight during industrial attachments. Chen, *et al*. (2020) posits that enhancing industrial attachment necessitates greater faculty-employer engagement in program development and oversight. The study suggests creation of strong industrial placement units by faculties and employer remuneration as essential ways to improve the attachment process.

Tahir and Ekmekcioglu (2022) assert that industry supervisors must have adequate orientation and education to effectively oversee and instruct trainees, ensuring they achieve the established objectives during the attachment time. Jahonga (2020); Phuthi and Mpofu (2021) emphasize that trainee monitoring is troublesome due to a lack of skilled personnel to oversee their training. Mwaura *et al.* (2022) contend that TVET institutions must ensure that industrial attachments yield substantive learning experiences, emphasizing that trainees believe feedback from host supervisors should be meticulously evaluated and utilized to adjust the attachment program as necessary.

Abdullahi and Othman (2022) study on the Influence of Supervisors in the Implementation of Industrial Attachment Program in TVET Institutions in Nigeria highlights the critical role of supervision in enhancing the effectiveness of industrial attachment. The study emphasizes the need for structured supervision, clear communication and institutional support to maximize learning outcomes.

Notwithstanding these guidelines, Nduduzo and Lungisani (2021) observe that certain industrial supervisors are excessively occupied to offer adequate supervision, while others regard trainees as a danger to their roles. Furthermore, they emphasize that, in certain instances, supervisors may hold qualifications that are lesser than those of the trainees. Rashid and Jalil (2021) asserts that numerous attachment institutions are deficient in trained supervisors, resulting in trainees acquiring minimal to no information, as they often possess greater expertise than the normal employees from whom they are intended to learn.

Alao *et al.* (2022) assert that trainees on industrial attachment are frequently perceived as merely 'more labour,' resulting in insufficient training and supervision. This problem is most apparent when there is inadequate cooperation between training institutes and host companies. Oteki and Ouko (2023) similarly emphasize that trainees may perceive themselves as exploited, viewed as inexpensive labour, particularly when they serve as the principal source of ideas at farms or enterprises. This scenario may indicate a communication failure between TVETs and host supervisors, characterized by inadequate guidance from colleges to supervisors.

Olayo (2022) indicates that supervisors encounter difficulties, including insufficient guidance from TVET institutions, which exacerbates the supervision process. These issues impede the trainees' learning experience and the overall efficacy of the attachment. Moreover, Manoah (2020) contend that industry attachment is essential for augmenting trainees' competencies in their respective disciplines. To ensure the effectiveness of this procedure, they emphasize the necessity of mentoring trainees by seasoned industry experts. Both the industry and TVET institutions are jointly accountable for guaranteeing the quality and efficacy of industrial attachments.

Conversely, Makworo, *et al*., (2021) posits that several companies providing industrial attachments do not furnish trainees with the necessary practical experience, resulting in their insufficient preparedness for industry expectations. Rashid and Jalil (2021) asserted that industrial supervisors must maintain current experience and abilities to properly mentor trainees, hence promoting a culture of continuous improvement. Nyongesa and Makokha (2020) contend that the training provided must be timely and correspond with

the contemporary demands of society, particularly in an age of swift technological advancement.

Dondofema *et al.* (2020) noted that the industrial attachment system in Zimbabwe is characterized by lack of standardization, especially with supervision and evaluation. Their research revealed that industry supervisors frequently depend on subjective judgments when assessing trainees, and that companies have not received explicit evaluation criteria from the institutions. Manoah (2020) asserts that, even when trainees are accepted for attachment, they often receive insufficient supervision or evaluation. He advocates for increased faculty engagement in the design and oversight of industrial placements, the creation of robust industrial placement departments inside institutions, and financial compensation for firms hosting trainees during industrial training. These authors emphasize the imperative for improved coordination, established protocols, and expanded communication between TVET institutions and host companies to elevate the industrial attachment experience for trainees.

A host organization is required to choose a supervisor, ideally possessing professional expertise in the trainee's field, to monitor and evaluate trainees throughout their placement (Rono & Mwaura, 2020). Kipngetich (2025) noted that most industrial supervisors have insufficient technical expertise to provide adequate assistance to trainees, hence compromising the efficacy of the supervisory process. Despite the essential function of supervision as a bridge between theoretical knowledge and practical implementation, supervisors are frequently appointed on "ad-hoc" basis and undertake their responsibilities with minimal or no formal training (Dampson, 2022; Nduduzo &

Lungisani, 2021). The absence of preparation may undermine the quality of supervision, resulting in inadequate direction and support for trainees throughout their placements.

Atuhaire (2022) on analysis of the effect of field attachment programmes on Makerere University undergraduate students found that a gap frequently exists between academic instruction and industrial practices in agricultural enterprises. Consequently, trainees were either rendered redundant or assigned to office tasks unrelated to their professional development. This conclusion is supported by Oteki and Ouko (2023), who indicated that oversight by industry professionals was predominantly ineffectual in delivering substantive learning experiences for trainees.

To address the issues in workforce skills development, the Federation of Kenya Employers (FKE), in collaboration with the Africa Digital Media Institute (ADMI) and Nexford University, published a detailed report in 2022. The report underscored the increasing demand for skills within Kenya's workforce and stressed the necessity for employers to engage in the upskilling of their personnel. The report emphasized the significance of collaborations between academics and employers to close the skills gap. Nevertheless, despite the extensive talent pool, employers in Kenya persist in their difficulty in locating suitable people, a concern anticipated to escalate with the ongoing evolution of technology (FKE, 2023).

When properly taught and equipped, supervisors can offer significant insights and direction (Dampson, 2022). This will guarantee that trainees' assignments correspond with their developmental requirements and professional ambitions. Regular feedback sessions are crucial as they provide task modifications and enhancements according to

the trainee's progress, ensuring that the learning experience is dynamic and customized to individual requirements.

Albert Bandura's Social Learning Theory underscores the need of proficient supervision and feedback. The theory underscores the significance of observation, imitation, and modelling in the development of skills. Bandura posits that humans acquire knowledge not alone via direct experience but also by observing others, particularly those who exemplify competence as role models. The technique of vicarious reinforcement and modelling is crucial for skill development, as trainees can learn new skills by witnessing and emulating the activities of proficient professionals. Social interactions and feedback are essential in influencing the learning experiences and outcomes for trainees (Rono & Mwaura, 2020).

2.7 Synthesis of Literature and Knowledge Gap

The literature regarding industry attachment practices and their impact on vocational skills acquisition among TVET trainees in Kenya identifies many notable study deficiencies. Industrial attachment is seen as a crucial link between academic learning and practical application in professional environments. Nonetheless, numerous deficiencies exist in the structure and evaluation of induction, particularly within the Kenyan TVET sector. Despite the recognition of induction as beneficial for trainees in acquiring new skills in global literature (Mousa and Othman, 2023), less research exists in Kenya examining the impact of structured induction on vocational training.

Ayeko, *et al*. (2023) assert that induction process lack uniformity, with certain institutions providing extensive orientation while others do not. This indicates that TVET

institutions lack uniform induction methods. Harassment, inadequate supervision and excessive expectations are acknowledged as issues; nonetheless, their impact on trainees' learning during induction has not been well examined (Mwaura *et al.*, 2021).

Theorists such as Kolb and Bandura emphasize the need of structured induction (Kolb *et al.*, 1999; Bandura, 1977). Nonetheless, the majority of Kenyan studies have not employed these frameworks to examine industrial attachment patterns. Furthermore, recent research emphasizes the importance of overall workplace readiness above the specialization of specific talents. Despite concerns regarding trainee placement and welfare (Jahonga, 2020; Orodho, 2020), the correlation between these issues and the acquisition of occupational skills remains inadequately researched.

At the policy level, Kenya's education reforms recognize induction as a mechanism for aligning vocational training with labour market needs (TVET Authority, 2023; Educational Research and Reviews, 2023). However, gaps remain in the standardization and monitoring of these practices across counties. Research on the role of the induction phase of industrial attachment in enhancing vocational skills for TVET trainees in Kenya is sparse. Mwaura *et al.* (2022); Kigen and Ngeno (2024) observed a paucity of longitudinal evidence about induction effects over time. Addressing this gap is crucial to ensure that training outcomes align with Kenya's Vision 2030 and the African Union's Agenda 2063.

Tasks allocated to trainees during industrial attachment function as the principal means by which vocational skills are developed. Literature asserts that for industrial attachment to be effective, assignments must be pertinent, organized, and congruent with the

trainees' field of specialization (Mutua & Muthoni, 2021). Active participation in authentic work situations allows trainees to connect theoretical knowledge with practical application, enhancing practical skills and preparedness for the job.

Ng'ang'a and Mwangi (2023) assert that when TVET trainees are given duties aligned with their training curriculum, such as operating machinery, troubleshooting systems, or executing technical repairs, they are more likely to cultivate both competence and confidence. Conversely, allocating general or low-skilled jobs, such as cleaning, filing, or supervising others, restricts learning possibilities and may dishearten trainees. Munyua *et al.* (2022) emphasize that a rotational work structure, in which trainees engage in various jobs across departments, considerably enhances multi-skill acquisition. This method is particularly advantageous for cultivating adaptability, enhancing problem-solving skills and comprehending job systems. The efficacy of tasks is contingent upon the quality of their supervision and their alignment with the overarching training objectives.

Notwithstanding these insights, a continual disparity exists between the expectations of TVET trainees and the responsibilities allocated during their attachment (TVETA, 2023). Numerous industries prioritize productivity at the expense of training, consigning trainees to menial or repetitive tasks. Furthermore, TVET institutions frequently lack oversight systems to guarantee the congruence of designated activities with institutional learning outcomes.

While many studies have investigated the significance of industry attachment in improving vocational skills, there is a paucity of research that objectively assesses the

quality and usefulness of assignments offered to TVET trainees during such attachments. Most studies only examine generic outcomes like employability or technical proficiency, neglecting to investigate whether trainees are assigned practical, relevant and curriculum-aligned assignments that directly facilitate skill acquisition.

A further deficiency exists in the absence of uniformity or oversight about task allocation. Although TVET institutions establish general objectives for attachments, there is a paucity of empirical evidence regarding the implementation of task assignments by host firms and the alignment of those activities with anticipated learning outcomes. Furthermore, there is inadequate information about the impact of task complexity and diversity on the profundity of vocational skill learning (Kigen & Ngeno, 2024). Elements like autonomy, oversight, task rotation and feedback mechanisms are infrequently addressed in contemporary research, despite their significant influence on experiential learning and skill acquisition.

Supervision is recognized as an essential element of effective industrial attachment programs. Research indicates that trainees who receive consistent, constructive supervision are more inclined to enhance technical skills, comprehend workplace standards, and refine problem-solving capabilities (Mwaura *et al.*, 2022). Supervision guarantees that trainees engage actively, receiving guidance through practical assignments that correspond with curriculum objectives.

Research in Kenya and other sub-Saharan African settings indicates that the quality, frequency, and type of supervision markedly affect the extent of skill learning (Njenga, 2023). Supervisors who deliver prompt feedback, mentor trainees and oversee their

progress improve both technical skill acquisition and soft skills such as communication and collaboration.

TVETA (2023) advocates for systematic oversight, comprising frequent site visits by institutional personnel and appointed industry mentors, to guarantee the achievement of learning outcomes throughout the attachment term. Nonetheless, evidence indicates that supervisory procedures differ significantly among businesses and organizations. In several instances, trainees indicate being unsupervised or even superficially overseen, thereby compromising the goals of industrial attachment.

Despite increasing acknowledgment of the significance of supervision, notable gaps remain in the current research, since few empirical studies have examined the direct influence of supervision on vocational skill development. Much study examines supervision in conjunction with other variables (e.g., equipment, duration or induction), complicating the assessment of its independent effect.

Research on various supervisory models (e.g., peer, instructor-led, or industry mentorship) and their comparative effectiveness in the TVET context is limited. Most studies conducted in Kenya concentrate on trainees' perspectives of supervision, sometimes neglecting to gather data from industry supervisors, thereby lacking a comprehensive perspective on the supervisory process.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the comprehensive and systematic approach adopted to investigate the influence of industrial attachment practices on the acquisition of vocational skills. These include research design, location of the study, study population, sample size, sampling procedures, data collection instruments, pilot study, validity and reliability of research instruments, data collection procedures, methods of data analysis and ethical considerations. By employing a mixed methods research design and utilizing multiple data collection and analysis techniques, the study provides a robust and actionable insights that inform policy and practice in vocational education and training.

3.2 Research Design

This study adopted a mixed methods research design, which integrated both quantitative and qualitative approaches to provide a more comprehensive understanding of the research problem. According to Oranga (2025), mixed methods research involves the collection, analysis and integration of both numerical and textual data to draw conclusions that are more complete and insightful than those derived from a single approach. This approach enhanced the credibility, richness and practical relevance of study results.

The quantitative component of this study focused on determining the influence of industrial attachment practices specifically induction, tasks assigned and supervision on the acquisition of vocational skills among TVET trainees in Kenya. This was achieved

through the use of a structured trainee's questionnaire that generated numerical data suitable for statistical analysis.

The qualitative component, on the other hand, complemented the quantitative findings by providing deeper insights into assessors' and supervisors' experiences and contextual factors influencing skill acquisition during industrial attachment. Interviews captured detailed narratives and explanations that could not be fully expressed through numerical data.

The integration of both methods was guided by the pragmatic paradigm, which emphasizes the use of approaches that best address the research objectives and provide practical solutions (Oranga,2025). The mixed research design enhanced the validity and reliability of the study by allowing for triangulation and the cross-verification of findings from multiple data sources (Dawadi *et al*.,2020). This combination of methods enabled to gain both the breadth and depth of understanding of the influence of industrial attachment practices on vocational skills acquisition and make informed conclusions and recommendations relevant to the TVET context in Kenya.

3.3 Location of the Study

The study was carried out in Kakamega County, Kenya which had fourteen sub-counties namely; Mumias East, Shinyalu, Matungu, Mumias West, Malava, Lurambi, Lugari, Likuyani, Khwisero, Ikolomani, Butere, Kabras East**,** Kabras West and Navakholo. (*See Appendix 6)* Kakamega County offers a diverse landscape of industries, educational institutions and TVETs, making it an ideal setting for examining the dynamics of industrial attachment programs. According to Kakamega County website (2023, the

county ministry of education vision is to be globally competitive in education, training, research and innovation for sustainable development. This provides an ideal platform for policy makers, specialists in Technical and Vocational Education, as well as industrial planners to chart new frontiers for this sector of education and take on new opportunities and challenges to stay ahead in the competitive global arena. This would in turn reduce the overall multidimensional poverty headcount ratio (which incorporates education, living standards and material deprivation) which stood at 38.5% in 2021(Multidimensional Poverty Headcount Ratio: World Bank, 2022).

The research focused on public TVCs within Kakamega County allowing for a comprehensive understanding of how industrial attachment practices contribute to skill development among TVET trainees. Conducting the study in public institutions was necessary as these institutions offer access to a large and diverse trainee population, follow standardized national curricula and maintain structured records that support reliable data collection. Public TVET institutions are directly mandated to operationalize the Competency-Based Education and Training (CBET) framework and industrial attachment programs outlined in the TVET Act (2013) and Kenya Vision 2030. These institutions are more likely to cooperate with researchers and provide insights that can inform government policy and curriculum reforms. Studying in public settings also promotes equity by highlighting challenges faced by marginalized groups and ensures that findings and recommendations can be scaled nationally to improve vocational training outcomes across the board. The challenge of skill gaps is a public outcry in Kenya and Kakamega County experience the same.

3.4 Study Population

The study focused on public TVCs trainees, TVC Assessors and Industrial attachment supervisors. Kakamega county had 9 Public TVCs (TVETA, 2023) (*see Appendix* 14) spread across the 12 sub-counties. The study population comprised of 5220 diploma trainees on industrial attachment (Kakamega County Director Technical Vocational Education Office Report, 2024), 570 TVC Assessors and 500 Industrial supervisors according to Kakamega TVET Institutions' Annual Returns, 2024.

3.5 Sampling Procedures and Sample Size

Kakamega County had a total of 9 public TVCs where complete enumeration was applied to settle on all the public TVCs in each sub-county. All public TVC institutions in the county were included in the study to ensure comprehensive representation and eliminate sampling bias, as the number of institutions was manageable. Fraenkel *et al*. (2023) suggests that if the population is small, engaging the entire population is ideal. This provided comprehensive information from every TVC. The results were considered highly accurate and precise and hence there was no need to extrapolate findings or make statistical inferences as the data represented the entire population.

The study purposively sampled diploma trainees on industrial attachment within the Department of Applied Sciences. The emphasis was on Applied Science trainees because their programs combine theory and practical training that heavily rely on industrial attachment, making them best suited to provide relevant information on how induction, task assignment and supervision influence vocational skill acquisition. All TVC trainers involved in the assessment of trainees during industrial attachments were purposively

sampled. This was predicated on the notion that each participant had the ability and capability to furnish distinctive and valuable information for the study. Purposive sampling aims to focus on individuals with specific qualities that will enhance the acquisition of pertinent study information (Vijayamohanm,2022).

3.5.1 Sample Size

This study used a sample size formula developed by Yamane (Yamane, 1967) to calculate the appropriate sample size for trainees needed and ensure the survey results were statistically significant and representative of the entire population. This minimized errors and biases in the research findings. The formula is easy to understand and apply as it requires only the total population size and a predefined margin of error, which allows for quick sample size estimation. Yamane's formula is widely accepted and has been extensively used in survey-based research and is most suitable for studies employing descriptive survey designs with known populations and it is a straightforward sampling approach.

Moreover, the Yamane formula presupposes a 95% confidence level and random sampling, both of which are appropriate for obtaining generalizable outcomes in social and policy-oriented research (Journal of Scientific Research and Reports, 2023). The study can uphold methodological rigor and ensure feasibility in data gathering and analysis by employing the Yamane formula. The sample size for TVET trainees was determined from study population using the Yamane's formula as follows;

$$n = \frac{N}{1 + N(e^2)}$$

n = the desired sample size

N = the total population

e = the level of statistical significance (0.05)

Using the formula, the sample size is

$$n = \frac{5220}{1 + 5220(0.05^2)} = 371.88 \approx 372$$

The sample size for the trainees was 372

The sample size for each TVC institution was determined using proportionate stratification approach. With proportionate stratification, the sample size of each TVC is proportionate to the population size. Each TVC sample size was determined by the following equation.

$$n_h = \frac{N_h}{N} \times n$$

Where,

$n_h = sample\ \ size\ \ for\ \ strata$
$N = the\ total\ \ population\ \ size$
$n = the\ total\ \ sample\ \ size$
$N_h = population\ \ size\ \ for\ \ strata$

For example, the sample size of a TVC with 400 trainees the sample size is 29. The sample size of other TVCs, were calculated to make the sample size.10% of the supervisor's population and 10% of the TVET assessors' population were sampled for interviewing. According to Sathyanarayana (2024), when determining a sample size, a

researcher can use 10% of the accessible population if the population is large. As far as the sample size is a representative of the population to ensure valid and reliable results. A population of less than 100 individuals is small and more than 100 is large.

The sampling frame for each population is shown in Table 3.1

Table 3. 1: Sampling Frame

	Respondents	Population	Sample Size
1	Trainees	5220	372
2	Industrial supervisors	500	50
3	TVET assessors	570	57

3.6 Research Instruments

In order to answer research hypothesis, the study employed one questionnaire and two interview guides. A questionnaire coded QTT was administered to TVET trainees and interview guides administered to TVET assessors and industrial supervisors. The instruments were developed after conducting literature review based on research objectives and developing conceptual framework from factors identified in the empirical and theoretical literature. These factors formed the basis of the items in the instruments. The instruments were further evaluated by experts to ascertain their validity and reliability. Interview schedules for industrial supervisors and for TVET assessors provided in depth information on the influence of induction process, relevancy of tasks assigned and supervision role on acquisition of vocational skills among TVET trainees.

3.6.1 Questionnaire for TVET Trainees (QTT)

The questionnaire comprised of section A, B, C and D (*see Appendix 1).* Section A collected demographic data of the respondents. Section B sought trainee's opinions on industrial attachment practices; induction process, tasks assigned and role of industrial supervisors, section C sought opinions on effect of organizational culture trainee's attitude on acquisition of vocational skills while Section D sought trainees' opinions on acquisition of vocational skills.

The questionnaire had 30 items and was preferred because of its confidentiality and more importantly, it saved on time and enhanced reliability due to absence of interviewer bias. A questionnaire provided a structured way to gather information from a large number of trainees, it was cheaper to administer than interviews and chosen so as to get variability in responses across the sample in order to observe differences from the answers given by the respondents. The questionnaire was developed and sought information on a 5-point Likert scale. The weightings of the scale were 5. Strongly Agree 4. Agree 3. Not Sure 2. Disagree and 1. Strongly Disagree.

The study adopted a 5-point Likert scale to measure respondents' perceptions because it provided greater sensitivity and precision compared to a 3-point scale. The 5-point format allowed respondents to express varying degrees of agreement or disagreement, which enhanced the richness and variability of the data. This design also improved the reliability and internal consistency of the instrument; as wider response options yielded a higher Cronbach's alpha coefficient of 0.833. In addition, the presence of a neutral midpoint enabled respondents with moderate opinions to respond accurately, thereby minimizing response bias. The 5-point scale also supported more robust statistical

analyses, as it produces data that can approximate interval-level measurement suitable for parametric tests. Respondents were requested to indicate their level of agreement on several aspects of the industrial attachment practices.

3.6.2 Interview Guide for TVET Assessors

The interview guide provided valuable insights into the industrial attachment practices. Interviews encouraged respondents to provide detailed narratives and perspectives on the industrial attachment practices. The open-ended questions were used because they gave the respondent freedom of response. The tool was developed and comprised of 15 unstructured questions (*see Appendix 2*).

3.6.3 Interview Guide for Industrial Supervisors

Interviewing supervisors provided valuable insights in to industrial attachment practices. These insights enhanced the richness and depth of the research findings, ultimately contributing to more informed recommendations for improving industrial attachment practices and enhancing skill acquisition. The questions provided supervisors with the opportunity to share valuable insights and recommendations for enhancing the alignment and effectiveness of industrial attachment practices. The interview guide was developed and comprised of 30 unstructured questions. (*See Appendix 3*).

3.7 Quality Control

Quality control refers to strategies and policies that ensure that data integrity, quality and reliability are maintained at every stage of the research (Change Works, 2019). This helps in preventing errors from entering the datasets, taking precautions before the data is

collected and establishing procedures of using the data in the study. This was ensured by carrying out validity tests, reliability tests and piloting.

3.7.1 Pilot Study

Pilot study was carried out in one public TVC and five host industrial attachment institutions in Vihiga County. Vihiga County shares several key characteristics with Kakamega County that justify its selection. Both counties are located in Western Kenya and exhibit similar socioeconomic profiles, including a mix of rural and semi-urban communities that influence the nature of vocational training and industrial attachment opportunities. The TVET institutions in both regions operate under the same national education framework, ensuring consistency in curriculum, assessment standards, and industrial attachment practices. Additionally, the industries available for attachment such as agriculture, small-scale manufacturing, ICT services, and public institutions are comparable in scale and scope. This similarity enhances the relevance and transferability of findings from Vihiga to Kakamega, making it a practical and representative setting for refining research instruments before the main study.

Instruments for data collection were tried in a pilot study to assess their appropriateness in which 37 trainees, four assessors were randomly selected from the TVC selected. According to Andrade (2020) a pilot study may be done on 10% of the sample size intended for the main study, especially when the population is large (>100). For smaller populations (<100 individuals), a higher percentage of up to 30% may be used to ensure reliability and detect potential issues in the research instrument (O'Neill, 2022). The respondents who participated in the pilot study were informed on the duration for filling in the questionnaires and that the information they provided was to be treated with utmost

confidentiality. Out of the 37 questionnaires given to trainees 30 were duly filled and returned.

Ten research assistants were selected based on their qualifications, experience and suitability for the study. Preference was given to those with backgrounds in education, social sciences, technical and vocational training and prior experience in administering questionnaires and conducting interviews. They were assessed for communication skills, ethical awareness, and ability to follow procedures, after which they received training on the study objectives, ethical considerations and data collection procedures to ensure reliability and consistency.

The results of the pilot study were used to refine the research instruments, identify potential issues and make necessary adjustments to the study design. The purpose of pilot study was to generate data that was used to determine the reliability and validity of the research instruments (Andrade, 2020). Besides, the data collected was analyzed to establish the appropriateness of the proposed test statistics for data analysis and the outputs required. Piloting was also used to train research assistants on the procedures of actual data collection, coding and data entry. Piloting also assisted in determining the length of time required for filling of the questionnaire and in gauging whether the research objectives and designs were realistic.

During piloting, QTT questionnaire and interviews were administered to the respondents. Respondents were encouraged to make useful suggestions by submitting written comments on items with ambiguities. Comments from the pilot study were used to determine whether the research was feasible and improve on the data collection tools

before they were used for the study (Simiyu *et al.,*2025). 10% of pilot respondents cited ambiguous wording while 10% asked for clarification on "Induction process prepares me adequately." The term was clarified ("induction means regular sessions of guidance beyond day one orientation…").

3.7.3 Validity Test

To ensure validity, triangulation was employed by collecting quantitative and qualitative data as well as from three distinct groups: trainees, TVET assessors and industry supervisors. This allowed for cross-verification of findings. Content validity was applied in order to ensure that the research instruments included all the items that were essential and that the instruments measure the content they intent to measure. Construct validity was used to evaluate whether the research instruments represent what they intended to measure. Face validity was applied to ensure that research instruments measure purportedly what they should. Criterion validity was used to evaluate how well the items of the research questions can predict the outcomes of the study.

The content validity of the research instrument was established through expert judgment by two research supervisors. Each supervisor independently rated the relevance of the questionnaire items on a four-point scale, where 1 represented "not relevant" and 4 denoted "highly relevant." Items rated as 3 or 4 were considered relevant for the study. The Item-level Content Validity Index (I-CVI) was computed for each item as the proportion of experts who rated it as relevant, and the average of all I-CVIs yielded the Scale-level Content Validity Index (S-CVI/Ave). The overall CVI obtained was 0.80, indicating that 80% of the items were judged to be relevant to the study objectives. According to Yusoff (2019) a CVI value of 0.80 or higher is generally considered

acceptable, suggesting that the instruments demonstrated adequate content validity for use in data collection.

Mathematically, this is expressed as:

$$\text{C. V. I} = \frac{\text{Agreed items by both } experts}{\text{Total number of items}}$$

3.7.2 Reliability Test

Reliability is the measure of the level to which a research instrument gives consistent data upon repeated trials, all other things remaining constant. This study adopted the Cronbach alpha coefficient of internal consistency as a reliability measure because it's more practical, uses all items in the research instrument, more convenient as compared to other methods and requires one test administration approach (Ahmad *et al.,* 2024). Other strengths lie in its simplicity, interpretability and broad applicability across various fields such as education, psychology and social sciences helps researchers identify items that may weaken the overall reliability of a tool. Cronbach's Alpha is also scalable, meaning reliability tends to improve with more items and stronger inter-item correlations, making it ideal for multi-item surveys and questionnaires. Ahmad *et al*. (2024) advise that alpha should be at least 0.70 to retain an item in an "adequate" scale.

Piloting was also done to find out if the interview questions were understood similarly by different respondents and yielded consistent responses. The TVET assessors and industrial supervisor's interviews were conducted with a small, representative sample of piloted population. During the piloting, standardized interview protocols were followed.

The three independent variables (induction, tasks assigned and supervision) and the

dependent variable (acquisition of vocational skills) were subjected to reliability test. The alpha was computed using data obtained during pilot testing as follows;

$$\alpha = \frac{\left[\frac{k}{k-1}\right]}{\left[1-\left(\frac{1-\sum_{i=1}^{n} S_i^2}{S_x^2}\right)\right]}$$

where

$k = the\,number\,of\,items\,on\,the\,test$

$S_i^2 = the\,obtained\,\text{var}iance\,for\,item\,i$

$S_x^2 = the\,\text{var}iance\,of\,the\,total\,test\,scores$

Using SPSS version 26, the results for reliability test is presented in Table 3.2

Table 3. 2: Reliability Analysis

Variable	Cronbach's alpha if item deleted	Cronbach's alpha
Induction process	0.833	
Task assigned	0.901	
Effect of supervision	0.821	0.833
Acquisition of skills	0.922	

From Table 3.2, the results show that Cronbach's alpha is 0.833 which indicates that the reliability test was adequate for the scale with this specific sample. Different researchers use different cut-off values for alpha which according to Ahmad *et al*. (2024) range from 0.7 to 0.95. They made the following interpretation of the value of alpha coefficient rule of thumb: "…> 0.9 – Excellent, > 0.8 – Good, > 0.7 – Acceptable, > 0.6 – Questionable,

> 0.5 – Poor, and < 0.5 – Unacceptable". This interpretation was applied to the resulting values of the alpha in the study.

3.9 Data Collection Procedures

The trainee's questionnaires (QTT) were issued to trainees when proceeding for industrial attachment. Instructions on how to fill the tool were given in details. The filled questionnaires were picked by the TVET assessors during industrial attachment assessment since the trainees who were in their final year of study were not to return to the TVETs. They were then cross-checked to ascertain that they were duly completed. One on one interviews with industrial supervisors were conducted at their respective work stations at agreed time. TVET assessors were interviewed at their TVETs after completing the industrial attachment assessment.

3.10 Data Analysis

The essence of data analysis is to present the data that has been collected from the field in a way that can easily be interpreted. Quantitative data was sorted, organized using tables, coded and analyzed using Statistical Package for Social Sciences (SPSS) version 26. Qualitative data was sorted, organized and categorized into themes and sub-themes to aid the process of analysis. Both descriptive and inferential statistics were used.

3.10.1 Descriptive Statistics

The descriptive statistics employed in this study included frequencies, percentages, means and standard deviation. Frequencies were used to show the count of individual items as per the responses of the respondents. Percentages and means were also used on demographic data for clarity on individual data and to show the differences in averages.

These descriptive statistics were chosen since they provide clarity and are easy to interpret by many people. For all the objectives, descriptive analysis was used based on ordinal data collected. Qualitative analysis of the findings from the interviews were triangulated with data collected from the questionnaires.

3.10.2 Inferential Statistics

Simple linear regression analysis was used for hypothesis testing. This technique uses a predictive analysis in which the dependent variable is the effect and independent variable is the cause. The following null hypothesis were tested at 0.05 level of significance. For HO_1, the variables that were tested are industrial induction process (independent variable) and acquisition of vocational skills (dependent variable). For HO_2, tasks assigned (independent variable) and acquisition of vocational skills (dependent) were tested, for HO_3, the variables that were tested were industrial supervision (independent variable) and acquisition of vocational skills (dependent variable). To determine the existence of statistically significant differences among the various groups of variables, *p* value was used in checking the significance of the variables and whether to reject or not to reject the hypothesis.

Multiple linear regression analysis was used to establish the influence of industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya. Hierarchical regression test was employed to determine the moderating effect of trainee's attitude and organisational culture on the relationship between industrial attachment practices and acquisition of vocational skills among TVET trainees in Kenya.

Table 3. 3: Summary of Data Collection, Analysis and Presentation Techniques

Study Objectives	Data collection technique	Data analysis method
i. To establish the effect of induction on acquisition of vocational skills during industrial attachment among TVET trainees	Interview and questionnaire	percentages, frequencies, mean and standard deviation Inferential statistics- Regression
ii. To determine the effect of tasks assigned on acquisition of vocational skills during industrial attachment among TVET trainees.	Interview and questionnaire	percentages, frequencies, mean and standard deviation Inferential statistics - Regression
iii. To establish the effect of supervision role in facilitating acquisition of vocational skills among TVET trainees	Interview and questionnaire	statistics percentages, frequencies, mean and standard deviation Inferential statistics - Regression

3.11 Ethical Considerations

To ensure both ethical and logistical considerations were met throughout the research process, various concerns were addressed at different stages. First, approval was sought from the Directorate of Post Graduate Studies (DPS) at Masinde Muliro University of Science and Technology (*see Appendix 7*). A research permit from the National Commission for Science, Technology and Innovation (NACOSTI) was sought (*see*

Appendix 10). This permit was then used to request official permission from the County Director of Education in Kakamega County to conduct the research (*see Appendix 9*) and then permit from County Commissioner was granted (*see Appendix 8*). A self-introduction letter was sent to the principals of the nine TVC institutions involved in the study seeking their permission and cooperation (*see Appendix 4).* Prior to administering the research instruments, participants were briefed on the study's purpose, procedures, and the importance of their involvement.

Plagiarism, as an academic offense, was strictly avoided. Any material cited or derived from other sources was properly acknowledged. The work presented is original motivated by a desire to contribute to Kenya's journey towards industrialization by 2030. All referenced works by scholars in the field were duly cited.

During data collection, participants were informed about the purpose of the research and the type of information needed. Informed consent was obtained from the relevant respondents before the administration of the research tools. Some trainees expressed concerns that their responses might expose sensitive information about their host institutions, but assurances were provided to alleviate these concerns.

Confidentiality was maintained as a critical ethical standard. Participants were assured that their responses would be treated with the highest level of confidentiality. Those who felt their responses could be sensitive were reassured that the data would not be used to harm individuals or institutions and would only be used for the purposes of this study. The collected data would not be shared with third parties.

The study ensured that no unethical practices, such as bribery, were used to gather information for the study. Responses were reported accurately and without bias. Anonymity, another key ethical requirement, was also respected. Participants were assured that their identities would remain confidential, with no identifying information included in the research tools. They were also informed that their participation and the information they provided would solely be used for academic purposes.

The completed questionnaires were securely stored to ensure their safety. Lastly, the principle of reciprocity was upheld, as participants would benefit from the research through future seminars on industrial attachment, where their cooperation would be recognized.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents results, interpretation and discussion of the findings. The demographic characteristics of the respondents are presented followed by description of the variables and descriptive statistics. The rest of the findings are presented in context of the objectives of the study which were; To establish the effect of induction process on acquisition of vocational skills during industrial attachment among TVET trainees; To determine effect of tasks assigned to trainees during industrial attachment on acquisition of vocational skills and to establish the effect of supervision in facilitating acquisition of vocational skills among TVET trainees in Kenya.

The first section delves into the response rate of the respondents. The second section presents the reliability and validity test, the third section presents the respondent demographic profiles, the fourth section gives the analysis of the Likert type of data, the fifth section gives the tests of statistical assumptions while the sixth section displays the analysis and discussion of the results.

4.2 Return Rate

Table 4. 1: Return rate

Unit of observation	Data collection method	Target population	Sample size	Response rate	%response rate
Trainees	Questionnaires	5220	372	292	79
Supervisors	Interviews	500	50	30	60
TVET Assessors	Interviews	570	57	32	64

Table 4.1 shows that a total of 372 questionnaires were issued to trainees. Out of these, 311(84%) questionnaires for trainees were returned. 19(5%) of the returned questionnaires were dropped out of the tally for having significant gaps in responses on various items. Usable questionnaires for trainees were 292(79%).

According to Morton, *et al.* (2021*)*; Baruch & Holtom (2021), a return rate of above 70% is very good, 60–69% is acceptable and 50–59% as marginally acceptable and sufficient for statistical generalization. Higher return rates help reduce non-response bias, meaning the results are more likely to accurately reflect the views of the entire population sampled.

One on one in-depth interviews were conducted for 30 supervisors (60% of the sample size) and 32 TVET assessors (64% of the sample size) as key informants.

4.3 Demographic Distribution of Trainees

The demographics aspects included gender and age of trainees.

The results are shown in Table 4.2.

Table 4. 2: Demographic aspect of Trainees

		Frequency	Percent
Gender	Male	160	54.8
	Female	132	45.2
	Total	292	100.0
Age	less than 30	273	93.5
	31 - 40 years	19	6.5
	Total	292	100.0

The results presented in Table 4.2 indicate that 160 (55%) of the respondents were male, while 132 (45%) were female. This finding points to a noticeable gender disparity in Technical and Vocational Education and Training (TVET) enrolment, with a higher proportion of males participating in industrial attachment programs. This trend aligns with previous studies that have highlighted the underrepresentation of women in vocational and technical fields in Kenya and across sub-Saharan Africa (UNESCO, 2020; Kakamega Gender Data Report, 2024).

The persistent gender imbalance suggests the need for targeted policies and awareness programs to encourage female participation in TVET, particularly in male-dominated trades. Additionally, the age distribution of the respondents shows that a significant majority, 273 (93%), were below the age of 30, while only 19 (7%) were aged between 31 and 40 years.

4.4 Analysis of Likert Type Scale Data

A five-point Likert scale collected Likert type data on the study variables. The scale was Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD). The study considered individual Likert scale items as yielding ordinal data, when more Likert scale items are used to measure a concept on a summative scale, the resulting Likert data can be considered to be an interval scale (Silan,2025).

The “disagree” cluster consisted of strongly disagree and disagree responses; “not sure” cluster comprised of the not sure responses; while “agree” cluster consisted of agree and strongly agree. The descriptive statistics were presented by way of means and standard deviations. The Mean as the average of all scores and the Standard Deviation as an indication of how wide a range of answers there were. A low standard deviation means there was a lot of agreement about the answers. High standard deviation means a wide range of answers, indicating disagreement. These mean and standard deviations are compared with reference to composite mean and composite standard deviation.

4.5 Objective 1: Effect of Induction Process on Acquisition of Vocational Skills

The first objective was to establish the effect of induction process on acquisition of vocational skills during industrial attachment among TVET trainees. Both descriptive and inferential analysis were used to ascertain the effect of induction process on acquisition of vocational skills during industrial attachment.

4.5.1 Descriptive Analysis of Effects of Induction Process on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

This section presents the opinions of trainees on the effect of induction process on acquisition of vocational skills during industrial attachment among TVET trainees. A five-point Likert scale was used to collect data on induction process.

The results were presented in table 4.3 as follows;

Table 4. 3: Analysis of Effect of Induction Process on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

INDICATOR	SD	D	NS	A	SA	Mean	SD
Induction prepared me for practical tasks encountered during attachment.	0%	0%	41(14%)	64(22%)	187(64%)	4.51	0.725
Induction gave guidance on my responsibilities	15(5%)	9(3%)	0%	73(25%)	195(67%)	4.45	1.009
I was oriented on workplaces mission, values and culture	0%	6(2%)	26(9%)	67(23%)	193(66%)	4.25	0.748
Induction effectively familiarized me with the workplace environment	6(2%)	0%	26(9%)	82(28%)	178(61%)	4.47	0.818
Induction helped me understand how my role contributes to the overall goal of the organization	0%	76(26%)	0%	62(21%)	154(53%)	4.21	0.978
Induction helped me understand the key skills required for my attachment	0%	0%	41(14%)	64(22%)	187(64%)0	4.51	0.725
Orientation sessions during induction process were relevant to attachment	12(4%	18(6%)	32(11%)	47(16%)	183(63%)	4.45	1.009
I felt adequately prepared to begin working independently after completing the induction process.	0%	6(2%)	26(9%)	67(23%)	193(66%)	4.25	0.748
Induction process included opportunities to ask questions and receive feedback	9(3%)	18(6%)	0%	35(12%)	230(79%)	4.70	0.840
Induction materials provided (manuals, videos, etc.) were helpful	0%	0%	0%	128(44%)	164(56%)	4.52	0.577
Induction process included practical activities	6(2%)	0%	0%	82(28%)	204(70%)	4.64	0.692
Induction helped me gain confidence in executing tasks	15(5%)	0%	12(4%)	70(24%)	195(67%)	4.48	0.943
Induction process introduced me to necessary tools and equipment	0%	6(2%)	50(17%)	96(33%)	140(48%)	4.25	0.880
Practical demonstrations during induction enhanced my ability to perform job-specific tasks.	9(3%)	6(2%)	0%	35(12%)	242(83%)	4.70	0.840

The study sought to evaluate if induction prepared trainees for practical tasks during their attachment. The findings revealed that 251 (86%) respondents affirmed the adequacy of the induction with a mean of 4.51 and a variation of 0.725, on the other hand 41(14%) were not sure if induction prepared them for practical activities. Notably, from interview,

> "*…though the trainees can accomplish some tasks, there is still some problems with handling of hydraulic machines after induction"* – Supervisor 1

This is supported by Kolb *et al.* (1999), who emphasized that learning is most effective when individuals first gain conceptual understanding before engaging in hands-on experiences during attachment.

Furthermore, the study aimed to determine whether the induction provided adequate guidance on trainees' responsibilities. The data showed that a significant majority 195(67%) respondents strongly agreed that induction helped them understand their responsibilities, while another 73 (25%) agreed, bringing the total positive responses to 269 (92%). This overwhelmingly positive response affirms the study's interpretation that the induction process is largely successful in clarifying roles and expectations. Notably, no respondents selected a neutral response, suggesting that participants held strong opinions about the program's effectiveness. A small minority of 9 (3%) disagreed, and 15 (5%) strongly disagreed, indicating some dissatisfaction. However, with a mean of 4.45 and a standard deviation of 1.009, the overall sentiment skews heavily positive. This concludes that, despite minor criticisms, the induction process generally meets its objectives of preparing trainees for their roles during attachment. The lack of not sure responses implies strong sentiments as suggested by college assessors that either the

program was helpful or it was lacking for a small minority. The 24(8%) dissatisfaction could indicate areas for improvement perhaps as one supervisor reported,

> "…. *induction can be improved by refining content, delivery method, ensuring consistency across sessions and possibly give more personalized guidance."* – Supervisor 2

This is supported by Patel *et al.* (2023) who in their study found out that well-structured on- boarding and induction process significantly improved trainees understanding of their roles and responsibilities. Likewise, Mchete and Shayo (2020) highlighted that induction training effectively familiarizes trainees with their work environment and organizational expectations.

The study sought to gauge the effectiveness of the induction in orienting trainees on the workplace's mission, values and culture. The results reveal that 260(89 %) respondents felt positively oriented with a mean score of 4.25 and standard deviation of 0.748 reflecting a high degree of consensus among respondents emphasizing the successful communication of the organization's mission, values and culture. 26(9%) were not sure possibly indicating that some trainees received partial or unclear orientation while 8 (2%) feel that they were not properly oriented, suggesting that the organization's orientation efforts are largely effective. This corroborates Cahya and Firdaus (2024) findings which indicate a significant influence of organizational culture on both employee engagement and organizational performance, highlighting the importance of a strong orientation towards mission, values and culture within the workplace.

These findings are however contradicting the study by Abane, Adamtey and Ayim (2022) who revealed a negative yet statistically significant relationship between the adaptability

dimension of organizational culture and trainee productivity. This finding suggests that in certain contexts, aspects of organizational culture such as adaptability may not always enhance trainee productivity as the Denison's Organizational Culture Model suggests.

The research assessed how well induction familiarized trainees with the workplace environment. The findings indicate that 260 (89%) respondents felt effectively familiarized. With a mean score of 4.47 and a variation of 0.818 while 26 (9%) were not sure and 6 (2%) disagreed. The data shows a high level of agreement and consistency among respondents. This suggests that the induction was successful in acclimatising trainees to the workplace environment. This however was contradicted by a TVET assessor who during an in-depth interview confirmed the fact some trainees were not acclimatised to their attachment places at the time of assessment. He asserted that;

> "…. *have been an assessor for more than five years now and when I visit some institutions, some trainees cannot tell me the name of the head of the institution and describe the organizational structure. So I wonder if they know their place of attachment well"* – TVET Assessor 5

The study sought to determine whether induction process effectively helped trainees understand how their roles contribute to organizational goals. The findings reveal that a significant majority 214 respondents, representing 74% believed the induction was effective in this regard. Notably, no respondents remained neutral, underscoring the strength of the opinions gathered. However, 76 respondents (26%) disagreed, pointing to a critical minority whose experiences suggest that existing induction practices may not be universally effective. These findings signal that while most trainees felt adequately informed, there remains a clear opportunity to enhance the clarity and the induction content. In particular, greater emphasis should be placed on tailoring induction sessions

to reflect the diverse roles trainees occupy within the organization. The overall mean score of 4.21 supports a broadly positive perception of the program's impact, while the relatively low standard deviation of 0.978 suggests that responses were generally consistent across participants.

These results align with existing literature. For instance, Jørgensen and Becker (2023) found that well-structured induction process contributes significantly to improving role clarity and organizational commitment. Their findings emphasize that new employees who receive specific guidance on how their individual tasks feed into broader organizational objectives tend to be more engaged, motivated, and ultimately productive. The current study lends further empirical weight to this assertion, suggesting that induction continues to play a vital role in early professional socialization.

Further analysis explored whether induction helped trainees grasp the key skills required during their attachment period. Here, the data revealed even stronger agreement, with 251 respondents (86%) affirming that the induction process effectively clarified these essential skills. The high mean score of 4.51 and a relatively tight standard deviation of 0.725 indicate a strong and consistent perception of the induction's usefulness in this area. Interestingly, 41 respondents (14%) indicated uncertainty.

Neutral stance may point to inconsistent delivery or a lack of alignment between the training provided and actual on-the-job expectations. Importantly, none of the respondents expressed outright disagreement, suggesting that the program was beneficial to all participants. This finding suggests that while the content on key skills is broadly effective, a more uniform and targeted delivery could further enhance the program's

impact. The 14% who were neutral might have felt the program was too general or not specifically tailored to their role as confirmed by supervisor who said,

> "…*We have many trainees to induct so the induction is general and not tailored to different vocational fields"* – Supervisor 7

A study by Klein and Polin (2022) supports these results, stating that structured on boarding and induction process enhance employees' skill acquisition, confidence, and job performance. In interpreting these findings, it becomes evident that the presence of well-planned induction process plays a pivotal role in shaping an individual's readiness and effectiveness within the organizational environment. This aligns with the data collected in the current study, reinforcing the idea that strategic orientation is not just a formality but a foundation for early career success and adaptation.

When assessing whether orientation sessions during induction were relevant to industrial attachment, the data revealed a nuanced picture. A small percentage of participants 30 (10%) disagreed, indicating that a minority did not perceive the sessions as beneficial to their attachment experience. However, a much larger proportion 262 (79%) expressed agreement, suggesting that the majority found these sessions meaningful and applicable to their practical training. The 32 participants (11%) who remained undecided may reflect a divergence in how orientation was delivered across departments or in how comprehensively it addressed role-specific expectations. The mean score of 4.45 confirms a strong overall consensus on the orientation sessions, while a standard deviation of 1.009 suggests moderate variability in perceptions. These results are a positive indicator that orientation is largely effective, though not uniformly so—pointing to an opportunity for improvement in tailoring content to specific fields of attachment.

These findings are further supported by Bauer *et al.* (2023), whose study demonstrates that effective orientation programs enhance trainees' understanding of their roles and contribute significantly to engagement, performance, and job satisfaction. Their work highlights the importance of ensuring that the induction process is not only informative but also strategically aligned with organizational goals. This correlation between orientation quality and employee confidence underscores the value of investing in comprehensive on boarding experiences, a conclusion that resonates with the current study's outcomes.

The study explored whether trainees felt adequately prepared to work independently after completing the induction process. The results showed that a large majority 263 participants (89%) agreed that they were indeed prepared, with a mean score of 4.25 and a relatively low standard deviation of 0.748. This strong agreement suggests that the induction process was effective in fostering a sense of competence among the trainees. Only 26 (9%) were uncertain, and a mere 6(2%) disagreed, indicating minimal dissatisfaction. These results are a testament to the value of structured and practical induction content. When induction is well-executed, it can significantly enhance trainees' transition into independent roles, boosting their confidence and productivity from the outset.

The research sought to assess the extent to which the induction process allowed for interaction, particularly through opportunities to ask questions and receive feedback. The findings revealed that a substantial majority of respondents, 231 (79%), strongly agreed that the induction process incorporated such opportunities. An additional 35 (12%) agreed, culminating in a combined 91% of participants expressing a positive perception.

In contrast, only 9 respondents (3%) strongly disagreed and 6% disagreed, while no respondents reported being unsure. This distribution suggests that employees were not only aware of the feedback mechanisms embedded within the induction process but also largely satisfied with their functionality. The mean score of 4.70 reinforces this overwhelmingly positive consensus. Furthermore, the relatively low standard deviation (SD = 0.840) signifies that participants' views were closely aligned, highlighting a consistent appreciation for the inclusiveness of the induction environment. These findings suggest that the organization prioritized a two-way communication approach during induction, which is a best practice in modern human resource management.

In addition, the study explored the usefulness of induction materials provided to new employees, such as manuals and videos. The data presents a clear and unambiguous outcome: 164 respondents (56%) strongly agreed, and 128 (44%) agreed that the materials were helpful, resulting in 100% positive responses. This unanimity is noteworthy and indicates that the support resources were not only available but also effectively designed to meet the informational needs of new staff. The mean score of 4.52 affirms this strong approval, while the low standard deviation (SD = 0.577) suggests little divergence in opinion across respondents. These findings imply that the organization’s investment in well-structured induction content has paid off in promoting early competence and confidence among recruits. This level of agreement underscores the critical role of clear, accessible, and practical materials in enhancing the learning curve during orientation.

The study also investigated the extent to which the induction process incorporated practical activities, as a means of engaging new employees through experiential learning.

The results were similarly positive, with 204 respondents (70%) strongly agreeing and 82 (28%) agreeing that the induction process featured practical components. This totals a striking 98% of participants who affirmed the presence of hands-on experiences, with only 6 respondents (2%) strongly disagreeing. There were no neutral or moderate disagreements, which demonstrates a high level of clarity and agreement regarding this aspect of the program.

The mean score of 4.64, paired with a relatively low standard deviation (SD = 0.692), indicates both a strong consensus and limited variability in the responses. This aligns well with findings from Garcia *et al.* (2023), whose study on Workplace Learning emphasized the effectiveness of practical training in boosting employee engagement and retention. The alignment between this study's findings and existing literature validates the significance of experiential learning as a cornerstone of successful induction practices. Such an approach not only enhances learning but also accelerates socialization and role clarity for new employees.

The evaluation of whether induction helped trainees gain confidence in executing tasks reveals compelling evidence that induction process significantly contributed to participants' self-assurance in performing assigned duties. From the data, 196 respondents (67%) strongly agreed and 70 (24%) agreed, suggesting that an overwhelming majority acknowledged the positive role of induction in boosting their task execution capabilities. This overwhelmingly favourable response implies that well-structured induction processes play a central role in preparing new trainees for the demands of their roles. Notably, only 15 respondents (5%) strongly disagreed and 12 (4%) were unsure, signalling a marginal presence of dissent or uncertainty. The mean

score of 4.48 on a 5-point Likert scale underscores the high level of satisfaction among participants, while the standard deviation of 0.943 points to moderate variation, indicating that while most experiences were positive, individual contexts and backgrounds may have influenced the perceptions slightly.

These findings resonate with Bustamante and Chagas (2022), who found that Teacher Induction Process (TIP) positively influenced beginner teachers' confidence and performance. This alignment is a strong validation of the current induction framework's capacity to enhance readiness and self-efficacy among new entrants in professional settings.

Turning to the investigation into whether the induction process effectively introduced trainees to the necessary tools and equipment, the responses further reinforce the program's perceived efficacy. Interestingly, none of the respondents strongly disagreed—a noteworthy observation that signifies unanimous recognition of at least some value in the exposure to tools and equipment. A very small portion, 6 respondents (2%), disagreed, which might suggest isolated cases where trainees perhaps had prior knowledge or faced unique challenges that limited the induction's impact. Meanwhile, 50 respondents (17%) indicated uncertainty, implying that while they did not reject the usefulness of the induction, they might have experienced inconsistencies or insufficient depth in certain areas.

However, the strong agreement from 96 respondents (33%), coupled with 48% who strongly agreed, paints a clear picture of general contentment and appreciation. The mean score of 4.25 substantiates this positive perception. In reflecting on these outcomes, it

becomes evident that the induction process not only meets basic expectations but exceeds them for a substantial proportion of participants. This as an endorsement of the program's relevance and practical value in equipping trainees with the tools they need to transition confidently into their roles. A standard deviation of 0.880 indicates relatively low variability, meaning most respondents had similar opinions, reinforcing the reliability of the results. This was supported by a supervisor who reported,

> "…. *trainees who receive clear guidance on tools and equipment during induction experience lower job-related anxiety and higher performance levels. You can tell the difference when they perform their tasks. We acknowledge the fact that some tools are obsolete but we try to show trainees how to operate them to avoid confusion and accidents"*- Supervisor 13

The analysis on whether practical demonstrations during induction enhanced trainees' ability to perform job-specific tasks reveals significant findings. The majority of participants strongly agree, with 242 (83%) of respondents affirming that practical demonstrations significantly improved their ability to perform job-specific tasks. A smaller proportion, 35 (12%), also agrees, while no participants were uncertain (0%). However, a very small percentage, 6 (2%), disagreed, and 9 (3%) strongly disagreed. These figures reflect a general consensus in favour of the effectiveness of practical demonstrations during induction. The mean rating of 4.70 further underscores this, indicating a very high level of agreement among participants. Additionally, the standard deviation of 0.840 suggests that, although there is some variability in responses, the overall consensus remains quite strong. From this, it is clear that hands-on training during induction is not only valued but also critical in enhancing job performance. The strong agreement, combined with the minimal disagreement, points to the clear benefit of incorporating practical demonstrations into induction process. Therefore, these results

support the notion that practical demonstrations are a key factor in preparing trainees for successful job performance. This is confirmed by a notable number of supervisors who reported that they demonstrated to trainees some tasks before they could leave them on their own. One supervisor reported,

> "*I first Strip a small amount of milk from each teat to check for abnormalities and stimulate milk flow as the trainees observe keenly and explain the importance of attaching the milking machine within 60-120 seconds after stimulation to maximize milk let down. I then let one or two repeat before I can leave them to do on their own."*- Supervisor 10

The response is however contradicted by assessor 5 who said,

> "…. *some of these supervisors are absent at work stations and leave trainees alone assuming they know everything. I was told in institution X the supervisor reports only on Mondays and leave trainees 'wajipange na kazi' and be called when college assessors visit."*- Assessor 5

From my analysis, it is clear that hands-on training during induction is not only valued but also critical in enhancing job performance. The strong agreement, combined with the minimal disagreement, points to the clear benefit of incorporating practical demonstrations into induction process. Therefore, these results support the notion that practical demonstrations are a key factor in preparing trainees for successful job performance.

4.5.2 Analysis of Effects of Induction Process on Acquisition of Vocational Skills During Industrial Attachment among TVET Trainees

Hypothesis testing was carried out with purpose of determining the nature of the connection that exists between the independent variable and the dependent variable. The statistical significance of the association was analysed to determine whether to reject not reject the null hypotheses that were presented for the study.

Regression analysis was used to establish the link between the independent variable and the dependent variable.

The study utilized the following null hypothesis which was tested at 0.05 level of significance.

H_{01}: There is no significant effect of induction processes on the acquisition of vocational skills

The results are shown in Table 4.4, 4.5 and 4.6.

Table 4. 4: Model Summary - Induction process and acquisition of skills

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.837[a]	.700	.699	3.461	.700	676.531	1

a. Predictors: (Constant), Induction process

b. Dependent Variable: Acquisition of vocational skills

Table 4.4 shows that the R-squared value is 0.700. This statistical finding signifies that the induction process accounted for 70% of the variability in the acquisition of vocational skills during industrial attachment among TVET trainees. The quality and effectiveness of the induction process played a substantial role in shaping the trainees' ability to gain relevant hands-on skills in the workplace. This finding underscores the importance of structured orientation programs as a foundational step in preparing trainees for productive industrial experiences.

This result validates the hypothesis that a well-organized induction process is critical in enhancing the practical competencies of TVET trainees. It suggests that when trainees are properly oriented through clear expectations, safety procedures, introduction to workplace culture, and guidance on task execution they are more likely to transition smoothly into real work environments and derive meaningful

learning experiences. However, the remaining 30% of the variation in vocational skill acquisition could be linked to other variables not examined in this study, such as the level of mentorship, the trainees' individual motivation, the nature of tasks assigned, and the quality of supervision.

Table 4. 5: ANOVAa - Induction process and acquisition of skills

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8105.519	1	8105.519	676.531	.000[b]
	Residual	3474.491	290	11.981		
	Total	11580.010	291			

a. Dependent Variable: Acquisition of vocational skills

b. Predictors: (Constant), Induction process

The findings displayed in Table 4.5 reveal that the independent variable induction process has a substantial and statistically significant predictive influence on the acquisition of vocational skills during industrial attachment among TVET trainees. Thus, a well-structured induction process is not just a formal requirement but a critical contributor to the trainees' ability to absorb and apply practical skills in real-world work environments. This conclusion is grounded in the results of the analysis of variance (ANOVA) test, conducted at a 0.05 level of significance. The F-statistic, (1, 290) = 676.531, with a significance value of p = 0.001, falls well

below the threshold of 0.05. From this, it can be deduced that the model explains a significant portion of the variance in vocational skills acquisition, affirming the crucial role of the induction process in shaping the quality and effectiveness of industrial training experiences in the TVET context.

Table 4. 6: Regression Coefficients - Induction process and acquisition of skills

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	6.039	2.010		3.004	.003
Induction process	.829	.032	.837	26.010	.000

a. Dependent Variable: Acquisition of vocational skills

The findings presented in Table 4.4c reveal that the induction process had a significant and positive influence on the acquisition of vocational skills among TVET trainees during industrial attachment. The analysis yielded a t-statistic of 26.010 with a corresponding p-value of 0.001, which is less than the conventional alpha level of 0.05. These results affirm that the observed relationship was statistically significant. This finding aligns with the theoretical expectation that well-structured induction process provides trainees with the foundational understanding of workplace expectations, roles, and safety procedures, which are essential in facilitating effective skill acquisition.

The obtained p-value of 0.001< 0.05 indicates a strong statistical evidence hence the study confidently rejected the null hypothesis, which posited that there was no significant effect of induction processes on the acquisition of vocational skills. The implication here is that the induction process plays a pivotal role in shaping the learning outcomes of TVET trainees during industrial attachment. The standardized coefficient (β = 0.829) further underscores the magnitude of this effect, indicating that a one-unit improvement in the induction process leads to a 0.829-unit increase in the acquisition of vocational skills. This suggests that TVET institutions and host industries should prioritize structured and comprehensive induction process as a key strategy for enhancing the effectiveness of industrial attachment and, by extension, improving overall vocational training outcomes.

The strong positive relationship revealed here demonstrates the need for deliberate investment in preparing trainees for industrial environments. Such preparations should go beyond administrative formalities to include orientation on organizational culture, practical expectations, and initial mentorship, which collectively enhance the trainees' confidence and readiness to learn on the job.

Thus, the model equation is:

$$Y = 6.039 + 0.829X \quad \text{.....(i)}$$

Where,

Y- Acquisition of skills

X- Induction process

In order to triangulate the findings from the quantitative analysis, qualitative analysis was conducted based on the transcripts from the one-on-one interviews with the industrial supervisors and TVET assessors.

After asking a supervisor how he assesses the effectiveness of the induction process in preparing trainees for vocational skill acquisition? he commented as follows:

"*I evaluate the effectiveness by observing how quickly trainees adapt to the workplace environment, their confidence levels during the first few weeks, and their understanding of workplace safety, communication and procedures."*- Supervisor 11

This excerpt supports the importance of an induction during attachment. Research studies have highlighted that structured induction process during industrial attachments are pivotal in equipping trainees with the necessary vocational skills, thereby enhancing their employability and effectiveness in the workforce. This was supported by a TVET assessor who said that;

"*Lack of structured orientation, insufficient safety training, and absence of mentorship are the most common gaps in the industry. Some trainees are left to 'figure things out,' which delays their learning."*- Assessor 4

Mchete and Shayo (2020) research explored how induction training facilitates new employees' integration and performance. The study found out that effective induction process enhances employees' understanding of their roles and the organizational culture, leading to improved job performance. Similarly, Mchete

and Shayo (2022) investigated how induction process influence employee performance, emphasizing that a well-structured induction process positively impacts employees' understanding of organizational culture and expectations. Interview results also share similar opinions in which a supervisors indicated that:

"*A structured induction ensures trainees understand their tasks early, allowing them to focus on skill development rather than figuring out where to start. Through hands-on demonstrations and mentorship during induction, trainees grasp fundamental techniques quickly." So, I can conclude that an effective induction process instils discipline and professionalism, which are essential for skill acquisition and career growth."*- Supervisor 8

Research by Mutinda and Mwangi, (2022) focusing on TVET institutions in Nairobi County highlighted that industrial attachment exposure is vital for developing employability skills. The study found that trainees who underwent comprehensive induction and were assigned relevant tasks during their attachment exhibited improved creativity and innovation. A significant majority (87.2%) of respondents agreed that the skills acquired during their attachment were pertinent to enhancing employability. The study concluded that a conducive work environment and structured induction are crucial for effective skills development.

Mutinda and Mwangi's research findings were echoed by a supervisor who reported that;

"*A thorough orientation on safety protocols, clear explanations of roles and expectations and early exposure to practical tasks contribute most. A welcoming*

atmosphere also plays a big role in reducing anxiety of trainees and building confidence."- Supervisor 9

A study by Owino and Wambua (2022) examined the influence of industrial attachment duration on employability skills development among TVET trainees in Nairobi County. The findings suggested that while the duration of the attachment is important, the quality of the induction process plays a more significant role in equipping trainees with essential skills such as teamwork, decision-making and problem-solving. These studies collectively underscore the critical role of structured induction process during industrial attachments in enhancing the acquisition of vocational skills among trainees.

While induction has its merits, Mwaura, *et al.* (2022) emphasized that the duration of industrial attachment plays a more pivotal role in developing employability skills than the induction process. The study suggested extending the attachment period to allow trainees to gain deeper, hands-on experience, which is more influential in skill acquisition.

Similarly, Maingi (2020) research on Institutional Factors Influencing Acquisition of Vocational Skills by Trainees in Public Vocational Training Centres in Kakamega County, Kenya, identifies factors such as instructor capacity, financial resources, training facilities, and instructional strategies as more significant determinants of vocational skills acquisition than induction process. The study recommended enhancing these institutional factors to improve training outcomes, suggesting that focusing solely on induction may not yield substantial benefits.

Implications of a well-structured induction is it enhances role clarity, builds confidence, and facilitates faster adaptation to the workplace environment. It fosters trainee engagement and motivation by promoting a sense of belonging and readiness to learn. Moreover, induction aligns trainees with learning objectives, boosts confidence and ensures safety and compliance. These factors collectively contribute to improved skill development, workplace performance and long-term employability.

4.6 Objective 2: Effects of Tasks Assigned on Acquisition of Vocational Skills During Industrial Attachment among TVET Trainees

The study sought to establish the effect of tasks assigned to trainees on acquisition of vocational skills during industrial attachment. Both descriptive and inferential analysis were used to ascertain the effect of tasks assigned on acquisition of vocational skills during industrial attachment.

4.6.1 Descriptive Analysis of Effects of Tasks Assigned on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

This section presents the opinions of trainees on the effect of tasks assigned on acquisition of vocational skills during industrial attachment among TVET trainees. A five-point Likert scale was used to collect Likert type data on tasks assigned.

The results were presented in table 4.7 as follows;

Table 4. 7: Effects of Tasks Assigned on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

INDICATOR	SD	D	NS	A	SA	Mean	SD
Tasks assigned are directly related to my field of study	6(2%)	29(10%)	6(2%)	58 (20%)	193(66%)	4.38	1.05
Tasks assigned contribute significantly to my overall skill development	6(2%)	0%	0%	82 (28%)	204(70%)	4.64	0.692
I can apply theoretical knowledge learned to tasks assigned	15(5%)	0%	12(4%)	70 (24%)	195(67%)	4.48	0.943
Tasks assigned prepared me for future employment	0%	6(2%)	50(17%)	96(33%)	140(48%)	4.25	0.880
Tasks assigned align well with my career aspirations	9(3%)	6(2%)	0%	35(12%)	242(83%)	4.70	0.840
Tasks assigned were meaningful as learning experiences	0%	0%	0%	128(44%)	164(56%)	4.52	0.577
Tasks given are challenging enough to enhance my professional competence	6(2%)	41(14%)	0%	70(24%)	175(60%)	4.64	0.692
Tasks assigned help me build confidence in performing job-related activities	15(5%)	0%	12(4%)	70(24%)	195(67%)	4.48	0.943
Tasks assigned reflect the current needs and trends of the industry	9(3%)	35(12%)	29(10%)	88(30%)	131(45%)	4.20	0.850
Tasks given effectively utilized my strengths and abilities	26(9%)	6(2%)	0%	35(12%)	241(83%)	4.70	0.840
Tasks assigned foster a sense of autonomy	0%	47(16%)	0%	50(17%)	225(77%)	4.71	0.600
Complexity of tasks was appropriate for my level of competence.	9(3%)	96(33%)	9(3%)	43(15%)	199(68%)	4.32	1.157
Assignments given helped me reinforce the theoretical knowledge acquired in class.	38(13%)	20(7%)	44(15%)	120(41%)	70(24%)	3.58	1.278

The evaluation of whether tasks assigned were directly related to the respondents' fields of study provides a clear indication of how well the tasks align with participants' expertise. A significant majority of respondents, 193 (66%), strongly agree, and 58 (20%) agree that the tasks are directly related to their field of study. This substantial percentage of positive responses highlights that most participants find the tasks relevant and appropriate for their academic or professional background. From this, it can be inferred that the tasks are generally well-designed to match the participants' skill set and knowledge base.

Interestingly, only a small minority, 6 (2%) strongly disagreed and 29 (10%) disagreed, suggesting that the dissatisfaction with task relevance is limited to a few individuals. This reinforces the conclusion that the alignment between tasks and field of study is largely effective. Additionally, the 2% of respondents who remained undecided indicates that almost everyone has a clear perspective on the matter, further emphasizing the overall positive reception of the tasks.

The mean score of 4.38, which is very close to the "Strongly Agree" category, further underscores the strong consensus on task relevance. The standard deviation of 1.05, although indicating some variability in responses, suggests that the majority of participants share a similar view, with only slight differences in their experiences or expectations. This minor spread in responses could reflect individual differences in professional or academic backgrounds, suggesting that while the tasks are broadly aligned with fields of study, there may be a few outliers whose expectations or prior experiences differ.

Overall, the data strongly suggests that the tasks assigned are highly relevant to the participants' fields of study. The limited disagreement and small variability in responses point to individual differences rather than a systemic issue with task alignment. This reflects a successful effort to match academic and professional expertise with the tasks at hand, contributing to an overall positive assessment of task relevance. Lu, Chen and Qian (2024) agrees with these results on how aligning tasks with trainee's fields of study enhance learning outcomes and engagement. This is however contradicted by a supervisor who said,

> "…. *Some trainees turn up late and frustrated after roaming around unable to secure an attachment place. We know they have landed at the 'wrong' place but because they need to graduate, we accommodate them."* – Supervisor 14

The assessment of whether tasks contributed to skill development revealed that 286 (98%) of respondents perceived significant contributions, with only 6 (2%) expressing disagreement. This overwhelmingly positive response suggests that the majority of participants found the tasks to be valuable in fostering skill development. The mean score of 4.64 further underscores this highly favourable evaluation. Although the standard deviation of 0.692 reflects moderate variability, it remains within an acceptable range, signalling that while most respondents shared a common view, there was still some degree of individual difference. These results strongly support the notion that the tasks were instrumental in enhancing participants' skill sets, with only a small minority failing to recognize this impact.

In analysing the application of theoretical knowledge to tasks assigned, a significant majority of respondents expressed confidence in applying the concepts learned in their

academic studies to real-world tasks. A total of 196 (67%) strongly agreed, and 70 (24%) agreed, with a mere 12 (4%) unsure and only 15 (5%) strongly disagreeing. The mean score of 4.48 is notably high, which reinforces the perception that most respondents felt the theoretical knowledge they acquired was indeed relevant and applicable. The standard deviation of 0.943, while slightly higher, suggests that there were some differing opinions, yet the data indicates no substantial disagreement. This finding resonates with Benati and Fischer's (2021) study, which demonstrated that undergraduate business trainees were able to apply the theories they learned during their university courses effectively in their internships, resulting in an enhanced understanding through practical application. These findings offer strong evidence of the successful transfer of theoretical knowledge to practice, further validating the importance of integrating real-world experiences into academic curricula.

On the same vein, Kibet (2024), while Investigating the Link Between Knowledge and Practical Applications: Fusion of Multidisciplinary Research, delve into how theoretical frameworks can be translated into real-world practices across various fields. The authors argue that the gap between academia and industry is a significant barrier to effective knowledge application, which is why bridging this divide is critical for enhancing real-world outcomes. Their comprehensive literature review and empirical analysis highlight key factors that influence the successful implementation of theoretical knowledge in practical scenarios, further emphasizing the need for industry-specific contexts to be integrated into academic curricula. This indicates that aligning academic training with practical applications can help ensure that theoretical knowledge is not only absorbed but also effectively applied in the workplace.

The investigation into whether the tasks assigned prepared trainees for future employment showed that a majority of respondents believe that the assigned tasks have indeed prepared them for future employment. Specifically, 140 respondents (48%) strongly agreed (SA), while 96 (33%) agreed (A), indicating that a substantial number of trainees felt confident about the tasks' role in preparing them for their future careers. 50 respondents (17%) were undecided (NS), which suggests some uncertainty about the depth of preparation. However, it is noteworthy that only 6 respondents (2%) disagreed (D), and no one strongly disagreed, reinforcing the overall positive sentiment. This data suggests that the majority of trainees see value in the tasks assigned. The mean score of 4.25, being relatively high, strongly supports the notion that these tasks contribute significantly to job readiness. The standard deviation (SD) of 0.880 reveals moderate variation in responses, highlighting that, while the majority agree, there is still some diversity in the perceptions of their effectiveness.

In line with this, a study by Tadesse and Gillies (2023) found out that university trainees who engaged in practical, task-based assignments developed key employability skills such as problem-solving, communication, and adaptability. This insight aligns with the findings from the investigation, further solidifying the idea that practical assignments play an essential role in enhancing employability skills. From my perspective, integrating practical assignments into university curricula not only increases trainees' job readiness but also ensures they are better equipped to navigate the complexities of the professional world. This is supported by an assessor who reported that,

> "… *It is important to structure academic tasks to align with real-world job demands, as this increases trainee's confidence in their*

career preparedness. Its true practical tasks significantly contribute to job preparedness."- Assessor 10

Evaluation of whether the tasks assigned aligned well with trainees' career aspirations revealed that an overwhelming majority 254 respondents (95%) agreed, while only 15 (5%) disagreed, and none were undecided. The high mean score of 4.70 reinforces this strong consensus, while the standard deviation of 0.840 suggests some variation but still indicates that most responses gravitated toward agreement. These findings strongly imply that the assigned tasks are not only relevant but are also perceived as instrumental in guiding trainees toward their desired professional paths. This data highlights the importance of designing assignments that are purposefully tailored to trainees' future goals. When trainees see a direct connection between their current tasks and their long-term aspirations, they are likely to be more engaged, motivated, and committed to their training. It becomes evident that alignment between tasks and career goals is not merely beneficial, but essential for cultivating a sense of purpose and direction in professional development.

In contrast, the IPSOS Survey on Generation Z's Career Aspirations (2024) paints a concerning picture of the modern workplace. According to the survey, 70% of business leaders reported difficulty identifying the career aspirations of Generation Z employees, and nearly half (49%) struggled to support their growth within the corporate setting. Even more troubling is the perception among one-third of these leaders that young employees were negatively affecting workplace organization. The misalignment between job responsibilities and career ambitions can severely hinder not only individual growth but also organizational effectiveness. When tasks fail to reflect young professionals' goals and identities, the result is often disengagement and reduced job satisfaction. Therefore,

aligning tasks with career trajectories is not just an academic concern it is a pressing practical imperative.

The investigation into whether the tasks assigned were meaningful learning experiences yielded an unequivocal result: all 292 respondents (100%) agreed that the tasks were meaningful. The exceptionally high mean score of 4.52 confirms this perception, and the low standard deviation of 0.577 indicates minimal variation in responses, suggesting a consistent agreement across the board. This is a significant finding. It reflects the quality and the training tasks, suggesting that they were not only well-conceived but also effectively executed to enhance learning outcomes. Such uniformity in positive feedback is rare and indicates that the learning environment was conducive to real engagement and skill acquisition. This level of consensus also suggests that the educational or training program has succeeded in creating impactful experiences that resonate deeply with trainees, a vital element in any pedagogical or developmental initiative.

The study sought to establish whether the tasks assigned were challenging enough to enhance professional competence. Findings revealed that 286 respondents (98%) agreed, while only 6 (2%) disagreed, and none were unsure. These results paint a clear picture of overwhelming consensus among participants that the tasks were suitably challenging.The high mean score of 4.64 hovering close to “Strongly Agree” signals strong agreement and suggests that the tasks were not only relevant but also instrumental in pushing participants toward greater professional growth. The low standard deviation of 0.692 further strengthens this conclusion, indicating limited variance in responses and a shared recognition of the tasks’ value. These findings are encouraging, as they highlight the effectiveness of the training program in fostering professional competence through

thoughtfully designed, demanding tasks. This as evidence that the curriculum is well-aligned with the desired professional outcomes.

Additionally, the study examined whether the assigned tasks helped build confidence in performing job-related activities. A significant majority of respondents 196 (67%) strongly agreeing and 70 (24%) agreeing affirmed the positive impact of the tasks on their confidence levels. This clearly suggests that the program is achieving one of its core objectives: equipping trainees with not just skills, but also the self-assurance to apply them effectively in professional settings. The absence of neutral responses is particularly telling; it indicates that participants had clear and decisive views on the impact of the tasks, which is a strong validation of their relevance and influence. The mean score of 4.48 reinforces the perception of strong agreement, and the standard deviation of 0.943, while slightly higher, still points to a relatively consistent pattern in the data.

However, it is worth noting that 27 participants (9%) either disagreed or strongly disagreed with the statement, suggesting that for a minority, the tasks may not be meeting their confidence-building needs. Understanding the characteristics or experiences of this group could provide actionable feedback for refining the program. Overall, these findings align well with the broader objectives of professional development programs, which seek to instil both competence and confidence through experiential learning. The evidence here supports the notion that well-crafted, challenging tasks can have a profound and positive impact on trainee readiness.

The analysis on whether tasks assigned reflect the current needs and trends of the industry indicated that a significant majority of respondents strongly agree 131(45%) or agree 88

(30%) that the tasks assigned reflect current industry needs and trends. This indicates that the program is well-aligned with the evolving demands of the industry. A smaller percentage of respondents disagree 35 (12%) or strongly disagree 9(3%), suggesting that while the majority are satisfied, there is room for improvement in ensuring all tasks meet industry expectations. About 29 (10%) of respondents remain undecided, which could indicate uncertainty or variability in how tasks align with industry trends. The mean score of 4.20 reflects a strong overall agreement, indicating that most participants perceive the tasks as relevant to industry needs. Standard deviation of 0.850 is relatively low suggesting that responses are fairly consistent, with most participants clustering around agreement.

A recent study by the 2025 Manufacturing Industry Outlook published by Deloitte Insights (2024) highlights the importance of aligning tasks and training with industry trends. It emphasizes that organizations prioritizing targeted investments in digital skills and industry-relevant tasks are better positioned to address ongoing challenges like the skills gap and supply chain issues. This aligns with these findings, as it underscores the value of tailoring tasks to meet current industry demands.

In contrary to these findings is research by Adner and Helfat (2022) that discusses how excessive focus on aligning tasks with current industry trends can lead to a lack of innovation and adaptability. The study argues that organizations overly focused on alignment may struggle to respond to disruptive changes or emerging opportunities, as they prioritize short-term relevance over long-term strategic flexibility. This perspective suggests that while alignment is important, it should be balanced with fostering innovation and adaptability to ensure sustainable success.

The assessment of whether tasks assigned effectively utilize strengths and abilities revealed that an overwhelming majority of respondents strongly agree 242(83%) and agree 35(12%) that the tasks given effectively utilized their strengths and abilities. This highlights that the majority feel their skills and talents are being fully leveraged in the tasks assigned. Only 26 (9%) strongly disagree and 6(2%) disagree, showing a very small portion of respondents feel their strengths are not being utilized. With 0% choosing a not sure stance, indicates that participants have clear and definitive opinions about the utilization of their strengths and abilities. A high mean score of 4.70 indicates a very strong overall agreement, signifying that the tasks align exceptionally well with participants' strengths. The low standard deviation (0.840) suggests a high level of consistency in responses, with most participants agreeing or strongly agreeing. The results strongly suggest that the assigned tasks are well-suited to individuals' strengths and abilities. This likely contributes to higher engagement, better performance and overall satisfaction. However, it may be beneficial to explore the concerns of the small percentage who disagreed to ensure inclusivity and address any areas for improvement.

Evaluation on whether tasks assigned foster a sense of autonomy, a significant majority of respondents strongly agree 225 (77%) or agree 50 (17%) that the tasks assigned foster a sense of autonomy. This indicates that the tasks are designed in a way that empowers individuals to take ownership and make decisions independently. Only 47(16%) of respondents disagree, and no one strongly disagrees or remains neutral. This shows that the perception of autonomy is widely shared among participants. The high mean score of 4.71 reflects a strong overall agreement, indicating that the tasks are highly effective in promoting autonomy. The low standard deviation of 0.600 suggests that responses are

consistent, with most participants clustering around agreement or strong agreement. A study by Johansen *et al.* (2022) published in Frontiers in Education, explores the impact of autonomy support on motivation and academic functioning. The study highlights that autonomy-supportive environments enhance engagement, effort and learning outcomes, while autonomy-thwarting environments negatively affect motivation. This aligns with these findings, as fostering autonomy through task design appears to contribute positively to participants' experiences.

The study sought to find out if the complexity of tasks was appropriate for level of competence established that majority of respondents strongly agree 199(68%) or agree 43(15%) that the complexity of tasks assigned was appropriate for their level of competence. This indicates that the tasks are well-calibrated to participants' skills and experience. Some respondents 96(33%) disagree with the appropriateness of task complexity, suggesting that there might be a mismatch for a portion of participants where tasks are either too difficult or too easy. A small percentage 9(3%) remain undecided indicating slight uncertainty or variability in their perspective. The mean score of 4.32 reflects a strong level of overall agreement, emphasizing that the complexity of tasks generally meets participants' competencies.

The relatively higher standard deviation of 1.157 indicates a broader range of opinions, showing variability in how participants perceive the complexity of tasks. The results suggest that most participants feel the complexity of tasks is appropriate for their competence level, which is crucial for engagement and effective learning. However, the minority who disagree might benefit from customized task assignments or support

mechanisms to better match their skills. In an in-depth interview, one supervisor reported that,

> "…...*the complexity of tasks is not sometimes considered when we have trainees from all TVET levels and degree holders. We give them same work programme for the attachment period. There is a time a degree holder complained of being underutilised*"- Supervisor 5

On whether assignments given helped reinforce theoretical knowledge acquired in class, the study revealed that a total of 120(41%) agree and 70(24%) strongly agree, making up 65% of respondents who feel the assignments helped reinforce their theoretical knowledge. On the other hand, 38(13%) strongly disagree, and 20(7%) disagree, showing that a noticeable minority did not find the assignments helpful in this regard. A significant portion 44(15%) remain not sure which suggests some uncertainty about the effectiveness of the assignments in reinforcing theoretical knowledge. A Mean Score of 3.58 reflects a moderate level of agreement, suggesting that while many found the assignments beneficial, there is room for improvement. A Standard Deviation of 1.278 is relatively high and indicates variability in responses, showing that experiences among respondents were diverse. The results suggest that while the assignments are effective for a majority, some respondents feel the need for better alignment or more practical application of theoretical knowledge.

4.6.2 Analysis of Effect of the Tasks Assigned and Acquisition of Skills

The objective of this study was to determine the effect of tasks assigned to trainees during industrial attachment on acquisition of vocational skills during industrial attachment among TVET trainees. Linear regression test was employed to determine this. The study utilized the following null hypothesis which was tested at 0.05 level of significance.

H_{O2}: The tasks assigned to trainees during industrial attachment have no significant effect on the acquisition of vocational skills among TVET trainees in Kenya.

The results are shown in Table 4.8, 4.9 and 4.10

Table 4. 8: Model Summary b - tasks assigned and acquisition of skills

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.541[a]	.292	.290	5.316	.292	119.831	1	290	.000

a. Predictors: (Constant), tasks assigned

b. Dependent Variable: Acquisition of vocational skills

As presented in Table 4.8, the R-squared value of 0.292 indicates that the tasks assigned during industrial attachment accounted for 29.2% of the variability in the acquisition of vocational skills among TVET trainees. This finding underscores the importance of task relevance in shaping the quality and depth of skills trainees develop while on attachment. When trainees are assigned duties that are directly aligned with their area of training and career aspirations, they are more likely to engage meaningfully with their work, apply theoretical knowledge practically, and acquire skills that are both marketable and professionally enriching.

However, it is important to recognize that a substantial proportion of the variation in vocational skill acquisition specifically, 70.8% remains unexplained by this variable

alone. This suggests that while tasks play a critical role, other factors also contribute significantly to the skill development process during industrial attachment. Other elements such as the quality of supervision, availability of learning resources, duration of attachment, trainee motivation, and institutional support mechanisms may have influenced the outcome but were not explicitly captured in this study.

Table 4. 9: ANOVAa - Effect of Tasks Assigned on Acquisition of Skills

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3385.898	1	3385.898	119.831	.000[b]
	Residual	8194.112	290	28.256		
	Total	11580.010	291			

a. Dependent Variable: Acquisition of vocational skills

b. Predictors: (Constant), tasks assigned

The findings displayed in Table 4.9 indicate that the independent variable, tasks assigned has a substantial predictive effect or it is significantly useful in explaining acquisition of vocational skills during industrial attachment among TVET trainees. This conclusion is drawn from the analysis of variance (ANOVA) test conducted at a significance level of 0.05. The significance value of F (1, 290) = 119.831, p = 0.001 is below the pre-set significance limit of 0.05, providing support for this assertion.

Table 4. 10: Regression Coefficients - Effect of Tasks Assigned and Acquisition of Skills

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	24.379	3.092		7.884	.000
	Tasks assigned	.591	.054	.541	10.947	.000

a. Dependent Variable: Acquisition of vocational skills

The results of the study clearly demonstrate that the tasks assigned during industrial attachment had a significant impact on the acquisition of vocational skills among TVET trainees. Specifically, the analysis produced a t-statistic of 10.947 and a p-value of 0.001, which is well below the 0.05 threshold. This is a strong statistical evidence that the nature and appropriateness of tasks assigned to trainees directly contribute to their practical learning and skill development. This aligns with experiential learning theories, which emphasize that meaningful engagement with relevant tasks fosters deeper understanding and skill mastery.

In light of these results, the study rejected the null hypothesis at a 5% level of significance, confirming that the tasks assigned significantly influenced the acquisition of vocational skills during industrial attachment. This outcome suggests that assigning tasks aligned with trainees' fields of study and career aspirations not only sustains motivation but also facilitates the application of classroom knowledge in real-world contexts. This finding highlights the importance of deliberate task design by industry

supervisors to ensure that trainees are engaged in meaningful and progressive learning activities.

Moreover, the regression coefficient of 0.591 indicates that a one-unit improvement in the tasks assigned is associated with a 0.591 increase in the acquisition of vocational skills. This moderate-to-strong effect size suggests that while other factors may also contribute to skill development, the tasks is a key determinant.

Thus, the model equation is:

$$Y = 24.379 + 0.591X \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(ii)}$$

Where,

Y- Acquisition of skills

X- Tasks assigned

Studies underscore that the tasks assigned to trainees during industrial attachment significantly influences the acquisition of vocational skills. For instance, Mwaura, *et al.* (2022) conducted a study titled "Effectiveness of Industrial Attachment Exposure in Developing Trainees' Employability Skills from TVET Institutions in Nairobi County." The research highlighted that trainees exposed to tasks aligned with their vocational training exhibited enhanced employability skills. The study recommended harmonizing industrial attachment tasks with TVET curricula to optimize skill development.

Bor (2021) on the study "Effects of Trainee Industrial Attachment Skills Acquisition and Teamwork on Workplace Performance in Kenya," emphasized that assigning trainees

tasks relevant to their field of study during industrial attachment positively impacted their workplace performance. The findings suggested that task relevance is crucial for effective skills acquisition and application in real-world settings.

Mwaura *et al.*, (2022) on Effectiveness of Industrial Attachment Exposure in Developing Trainees' Employability Skills from TVET Institutions in Nairobi County, investigated on the issue of the impact of the nature of tasks assigned to the trainees during placement in relationship to the employability skills for improved creativity and innovations, 56 (37.6%) strongly agreed and 74 (49.7%) agreed. Only 6 (4.0%) were not decided and another 4 (2.7%) strongly disagreed. The research concluded that skills exposed to the trainees during the attachment were relevant as far as employability skills were concerned.

When an assessor was asked, how do you evaluate whether the tasks assigned to trainees align with their vocational training requirements? she responded

"*I cross-reference the tasks with the curriculum and check if they cover the intended learning outcomes. I also get feedback from the trainees and workplace supervisors*." – Assessor 12

Another assessor highlighted that;

"*Some trainees although quite a few were assigned detrimental tasks like making tea, running errands and watching others work without participation," This leads to frustration, demotivation and missed learning opportunities. In some cases, trainees complete their attachments with very little skill gain*."- Assessor 1

Migiro *et al.* (2022) examined "The Effect of Work-Based Learning on the Acquisition of Technical Skills amongst Mechanical Engineering Trainees in National Polytechnics in Western Kenya Region." The study found that work-based learning, particularly when tasks are pertinent to the trainees' academic focus, significantly enhances the acquisition of technical skills. The authors advocated for the integration of relevant practical tasks within industrial attachments to bridge the gap between theoretical knowledge and practical application.

In another study, Kenya Revenue Authority, (2025) assessed the suitability of industrial attachment opportunities in Kenya as envisaged in the Industrial Training Act. Their study found that majority of trainees perceived their attachment placements to be irrelevant to their areas of specialization. This misalignment led to minimal confidence in the skills offered during attachment, suggesting that merely assigning tasks, without ensuring their relevance, may not effectively prepare trainees for the workforce. This converges with an interview comment given by one assessor,

"*Some trainees are misused as office messengers because there are no tasks related to their training and they have to be kept busy*."- Assessor 9

These studies collectively affirm that the alignment of assigned tasks with trainees' vocational training during industrial attachments is pivotal for effective vocational skills acquisition. While many studies emphasize the importance of assigning tasks relevant to trainees' fields during industrial attachments for effective vocational skills acquisition, some research highlights challenges and factors that can hinder this process.

Alao *et al* (2022) examined industrial attachment programme in Nigeria. The study examined how task-relevant in-service training influences employee performance. It finds that training aligned with job tasks enhances skill development and job satisfaction. The study revealed that trainees often faced inappropriate area deployment, leading to assignments unrelated to their fields of study. Additionally, issues such as a shortage of attachment places and financial problems further complicated the effectiveness of the attachment experience. This is supported by one of the supervisors who highlighted the challenge of trainees roaming around looking for attachment places due to stiff competition from universities making them to finally land at "irrelevant" firms.

These studies suggest that while task is crucial, other factors such as proper placement, institutional support and resource availability play significant roles in the successful acquisition of vocational skills during industrial attachments.

The implication of aligning tasks assigned during industrial attachment with a trainee's area of study enhances the relevance of learning, facilitates practical application of theoretical knowledge and improves skill acquisition. It promotes confidence, motivation and professional growth by ensuring trainees engage in discipline-specific experiences, ultimately producing competent, industry-ready graduates.

4.7 Objective 3: Effects of Supervision on Acquisition of Vocational Skills During Industrial Attachment among TVET Trainees

The study sought to establish the effect of supervision on acquisition of vocational skills during industrial attachment among TVET trainees. A five-point Likert scale was used to collect Likert type data on the study variables.

4.7.1 Descriptive Analysis of Effects of Industrial Supervision on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

This section presents the opinions of trainees on the effect of industrial supervision on acquisition of vocational skills during industrial attachment among TVET trainees. A five-point Likert scale was used to collect Likert type data on supervision.

The results were presented in table 4.11 as follows;

Table 4. 11: Effects of Supervision on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

INDICATOR	SD	D	NS	A	SA	Mean	SD
Supervision received during attachment was adequate	18(6%)	15(5%)	26(9%)	113(39%)	120(41%)	4.04	1.116
Supervision allowed me to confidently take on more complex tasks	6(2%)	6(2%)	32(11%)	91(31%)	157(54%)	4.33	0.901
Supervisor took a personalized approach to my development	6(2%)	6(2%)	38(13%)	73(25%)	169(58%)	4.35	0.927
I received constructive criticism from my supervisor	0%	18(6%)	0%	50(17%)	224(77%)	4.71	0.600
Supervisor provided clear instructions for tasks	9(3%)	32(11%)	9(3%)	43(15%)	199(68%)	4.32	1.157
Supervisor was accessible to answer questions	38(13%)	20(7%)	43(15%)	121(41%)	70(24%)	3.58	1.278
Supervisor provided guidance and direction in navigating challenges	18(6%)	14(5%)	26(9%)	113(39%)	120(41%)	4.04	1.116
Supervisor motivated me to perform to the best of my abilities	6(2%)	6(2%)	32(11%)	91(31%)	157(54%)	4.33	0.901
Supervisor was approachable	6(2%)	15(5%)	38(13%)	73(25%)	160(55%)	4.35	0.927
Supervisor encouraged me to work independently after providing initial guidance.	0%	18(6%)	0%	50(17%)	224(77%)	4.71	0.600
Supervisor encouraged me to think critically	9(3%)	32(11%)	9(3%)	43(15%)	199(68%)	4.32	1.157
Supervisor offered adequate guidance	38(13%	20(7%)	44(15%)	120(41%)	70(24%)	3.58	1.278
Supervisor provided constructive feedback	18(6%)	15(5%)	26(9%)	113(39%)	120(41%)	4.04	1.116

The analysis of whether supervision received during attachment was adequate indicates that a combined 234(80%) of respondents felt that supervision was adequate. The Mean score of 4.04 suggests that the majority of respondents perceived supervision as adequate. The Standard deviation of 1.116 indicates moderate variability in responses, some degree of disagreement, but the mean still leans strongly towards agreement meaning while most agreed, there were some differing opinions. Only 33(11%) believed supervision was inadequate.

This is supported by a study conducted by Waiganjo (2023) titled Evaluation of Selected Internship Factors on Mastery of Soft Skills among Interns: Evidence from Nakuru County Government, Kenya. The study revealed that 84% of interns either agreed or strongly agreed that performance expectations were clearly communicated by their supervisors, while 89% acknowledged that tasks were well established and effectively communicated at the beginning of the internship. These findings highlight the critical role that structured and transparent supervision plays in the success of internship programs. From my analysis, such clarity in communication not only enhances the intern's understanding of their responsibilities but also fosters a sense of direction and purpose. These results are particularly valuable as they affirm the centrality of supervision in shaping the quality of the internship experience and enhancing the mastery of essential soft skills.

Furthermore, the current study examined whether supervisors empowered trainees to confidently take on more complex tasks. The results clearly show that 249 respondents (85%) believed that supervision helped them build the confidence required to tackle more challenging responsibilities. Only 32 respondents (11%) were undecided, and a mere 12

(4%) disagreed, indicating minimal opposition to the statement. The standard deviation of 0.901 indicates relatively low variability in responses, suggesting that most participants shared similar experiences regarding supervisory support. This consistency strengthens the validity of the findings and points to a common understanding among trainees of the positive influence of effective supervision. The mean score of 4.33 further reinforces the strong agreement that quality supervision significantly contributes to interns' ability to handle complex tasks. These findings emphasize the necessity of equipping supervisors with the skills and awareness needed to nurture trainee growth, build confidence, and ensure meaningful participation during internships. These findings suggest that effective supervision fosters professional growth by empowering interns to take on more complex tasks with confidence. This is also supported by one assessor who reported,

> "……*Attachment Organizations should continue providing structured and supportive supervision to enhance learning outcomes*."- Assessor 4

While many studies highlight the positive impact of effective supervision during internships, some research indicates that supervision quality can vary, leading to less favorable outcomes. For instance, a study by Hendricks and Cartwright (2018) investigated negative supervision events among psychology interns in South Africa. The findings revealed that 45.6% of the 92 participants experienced a negative supervision event during their internship, with 26.19% categorizing their experience as 'Harmful' and 73.81% as 'Inadequate.' Additionally, 22.6% of interns reported experiencing negative supervision events on a weekly basis. These results suggest that, in certain contexts, supervision during internships may not always be perceived as adequate or beneficial.

The assessment on whether supervisor took a personalized approach to personal development reveals that a large majority of respondents strongly agree 169(58%) or agree 73(25%) that their supervisor took a personalized approach to their development. This demonstrates that supervisors were perceived as being highly attentive to individual needs and tailoring their approach to support growth. Only 6(2%) strongly disagree and 6(2%) disagree, indicating that very few participants felt their supervisor did not adopt a personalized approach.38 (13%) of respondents remain not sure suggesting that some participants may not have had a strong opinion or may have experienced variability in the supervisor's approach. The high mean score of 4.35 reflects overall strong agreement, showing that most participants appreciated the supervisors' efforts to individualize their guidance.

The relatively low standard deviation of 0.927 indicates that responses were fairly consistent, though there is some variation in perceptions of the supervisors' personalization efforts. The results suggest that supervisors were generally successful in providing personalized support for participants' development, which is likely to have had a positive impact on their professional growth. However, a small percentage of dissatisfaction and neutrality indicates room for refinement to ensure every individual feels their needs are adequately addressed.

The study on receiving constructive criticism from supervisors indicates that 275(94%) agreed on receiving constructive criticism from supervisor, 18(6%) disagreeing and 18(6%) disagreeing. The mean score of 4.71 indicate an overall agreement. The standard deviation was 0.600 indicate a less variability in responses indicating a high level of satisfaction, amongst the respondents. This is contrary to research by Biewenga, DeBoer,

& Tumaini Innovation Center, (2024) which explored how industrial attachment impacts employment readiness and skill development among youth in informal and community-based vocational training programs. This study provides a counterpoint to traditional supervision models, suggesting that flexible, context-sensitive mentorship may be more effective than rigid oversight in certain industrial attachment settings. It supports the argument that supervision should be adaptive rather than standardized across all institutions. From this study, while effective supervision can enhance the attachment experience, there are instances where supervision may be perceived as inadequate or even detrimental, highlighting the need for consistent and high-quality supervisory practices across all attachment programs.

On whether supervisor provided clear instructions for tasks. 242 (83%) of respondents were in agreement with a mean score of 4.32 and variation of 1.157. 38(14%) disagreed while 9(3%) were not sure. These results align with a study by Aketch, *et al*. (2025) which explored on the challenges teacher trainees face during teaching practice supervision in public secondary schools in Nairobi County, Kenya. The evaluation on supervisor's accessibility to answer questions shows on average, respondents lean toward agreeing that their supervisor was accessible. A standard deviation of 1.278 indicates moderate variability in responses. Some respondents strongly agreed or disagreed, but most responses clustered around the mean. The majority of respondents 120(41%) Agree and 70(24%) Strongly Agree that their supervisor was accessible. However, a noticeable percentage 58(20%) disagreed or strongly disagreed, suggesting that while most employees found their supervisor accessible, a significant minority experienced issues

suggesting a room for improvement. The standard deviation (3.58) shows some variation, but the overall sentiment trends toward a positive perception.

The evaluation of the supervisor's support in navigating challenges shows that 234(80%) of respondents felt they received adequate support with a mean score of 4.04 and standard deviation of 1.116. A minority 38(11%) disagreeing and 20(9%) remaining undecided reflects a less favourable perception of the supervisor's support. The indicates high variability in responses, highlighting diverse experiences in the supervisor's support for overcoming challenges. Overall, supervisors are perceived as accessible, but there's room for improvement, as a significant minority 58(20%) feels otherwise. Addressing specific concerns (e.g., response time, availability) could further improve perceptions. A study by Tahir (2022) on Supervisor support, career satisfaction and career adaptability of healthcare sector employees underscores the significant role of supervisor accessibility and support in enhancing employee satisfaction and performance. Another study in Ghana's telecommunications sector revealed that supervisory support positively influences employee engagement, with a supportive organizational culture further strengthening this relationship.

The assessment on supervisor being approachable indicates that 234(80%) of respondents agree or strongly agree that their supervisor is approachable. This suggests that employees generally feel comfortable interacting with their supervisor. A very small percentage 21(7%) of trainees find their supervisor unapproachable, which is a positive sign. Some employees 38(13%) may feel indifferent, possibly due to limited interactions with their supervisor or varying experiences across teams. There is need to address concerns of the 7% who perceive their supervisor as unapproachable. This could involve

leadership training to enhance openness and communication. This can be done by exploring what makes the most approachable supervisors effective and apply those strategies across teams. Encourage regular feedback loops to ensure all trainees feel comfortable seeking guidance.

These studies underscore that the quality and nature of a supervisor's approachable behaviours are crucial. Simply being approachable is not sufficient; supervisors must ensure that their interactions are supportive and respectful to foster positive trainee's outcome.

The evaluation on supervisor encouragement to work independently after providing initial guidance, the majority of respondents 225(77%) strongly agree that their supervisor encourages independent work after guidance. An additional 50 (17%) agree, making a total of 94% expressing agreement. Only 18 (6%) disagree with the statement. No one is neutral, and no one strongly disagrees, showing a clear consensus. Mean (4.71) and Standard Deviation (0.600). The mean score of 4.71 further confirms strong agreement. The standard deviation of 0.600 suggests responses were fairly consistent, with most clustered around 5 (Strongly Agree).

These results indicate that supervisors are highly effective in providing initial guidance and then encouraging independent work. There is strong employee consensus on this, with very few dissenting opinions.

The study on supervisor encouragement to think critically reveals 199 (68%) Strongly Agree and 44 (15%) Agree, meaning the vast majority believe their supervisors

encourage critical thinking.32 (11%) Disagree and 9(3%) Strongly Disagree, showing some employees do not feel supported in critical thinking.

A mean of 4.32 suggests general agreement, but slightly lower than the previous statement about independent work (4.71). This could indicate that while supervisors promote autonomy more strongly, there is slightly less emphasis on fostering critical thinking. Higher Standard Deviation (1.157) A higher standard deviation means responses are more spread out, showing variation in how employees perceive supervisory encouragement of critical thinking.

A 2025 study by Agazu, Kero and Debela found that transformational leadership which includes encouraging trainees to think critically, positively influences problem-solving skills and innovation. Their research showed that supervisors who foster independent thinking enhance both trainee engagement and job performance. This aligns with these results, suggesting that organizations benefit when supervisors actively promote critical thinking, though there may still be gaps in consistency across different teams.

The evaluation of constructive feedback from the supervisor indicates that a total of 80% (39%) Agree and 120(41%) Strongly Agree their supervisor provides constructive feedback. 18(6%) Strongly Disagree and 15(5%) Disagree, meaning a small portion feels they do not receive constructive feedback. Not sure responses of 26(9%) shows some trainees are undecided, possibly indicating inconsistency in feedback delivery. A Mean Score of 4.04 indicates moderate agreement. This is lower than the previous statements (4.71 for independence and 4.32 for critical thinking), suggesting feedback may not be

as strong an area. A high Standard Deviation of 1.116 suggests variation in experience some trainees may receive frequent and helpful feedback, while others do not.

The results show most trainees feel they receive constructive feedback, but the higher variability and lower mean score compared to other supervisory practices suggest room for improvement. Some trainees may not find the feedback as useful, which is consistent with research showing that feedback must be delivered effectively to be truly constructive

A study by Zalo (2023) on Organizational Behaviour found that in some workplace settings, feedback interventions actually decreased performance. They discovered that not all feedback is constructive, and when feedback focuses too much on personal attributes rather than task improvement, it can demotivate trainees instead of helping them grow. This suggests that, even though many employees in your results perceive feedback as constructive, some may feel it is ineffective or even harmful.

Effective supervision during industrial attachment enhances skill development, boosts trainee confidence and improves employability outcomes. It ensures structured learning, fosters professional growth, and strengthens the link between academic training and industry expectations.

4.7.2 Analysis of the Effect of Supervision on Acquisition of Skills

The objective of this study was to establish the effect of supervision in facilitating acquisition of vocational skills during industrial attachment among TVET trainees. Linear regression test was employed to determine this. The study utilized the following null hypothesis which was tested at 0.05 level of significance.

H_{03}: ***There is no significant relationship between the supervision provided during industrial attachment and the acquisition of vocational skills among TVET trainees in Kenya***

The results are shown in Table 4.12, 4.13 and 4.14

Table 4. 12: Model Summary – Effect of Supervision on Acquisition of Skills

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.515[a]	.265	.263	5.416	.265	104.823	1	290	.000

a. Predictors: (Constant), Effect of supervision

b. Dependent Variable: Acquisition of vocational skills

The results presented in Table 4.12 indicate that the R-squared value is 0.265, suggesting that supervision accounts for 26.5% of the variability in the acquisition of vocational skills during industrial attachment among TVET trainees. This indicates a moderate but notable influence of supervision on skill development during industrial attachment. The positive relationship between supervision and skill acquisition supports the idea that effective oversight and guidance during industrial attachment are key components in enhancing the learning process for trainees.

It is however worth noting that while supervision contributes significantly, it does not account for all the factors that influence skill acquisition. The remaining 73.5% of the variability in vocational skill acquisition can be attributed to other elements that were not directly measured or included in this study. These could include individual factors such as the trainees' prior knowledge, personal motivation, or external influences like the learning environment and available resources. It suggests that a variety of additional factors could play a role in shaping the effectiveness of industrial attachment experiences.

Table 4. 13: ANOVA – Effect of Supervision and Acquisition of Skills

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3074.414	1	3074.414	104.823	.000[b]
	Residual	8505.597	290	29.330		
	Total	11580.010	291			

a. Dependent Variable: Acquisition of vocational skills

b. Predictors: (Constant), Effect of supervision

The findings presented in Table 4.13 suggest that supervision plays a crucial and predictive role in explaining the acquisition of vocational skills during industrial attachment among TVET trainees. As evidenced by the analysis of variance (ANOVA) test, which was conducted at a 0.05 significance level, the significance value of $F(1, 290) = 104.823$, $p = 0.001$, falls well below the pre-established threshold of 0.05. This result

provides strong statistical support for the assertion that supervision is a significant factor influencing the development of vocational skills during industrial attachment.

This finding reinforces the importance of active and engaged supervision in enhancing the learning experiences of TVET trainees. This implies that regular and meaningful supervision is essential for ensuring that trainees are not only performing tasks but also gaining the necessary skills, insights, and feedback to improve their competencies. Given the high F-value and low p-value, it is evident that the presence and quality of supervision during industrial attachment significantly contribute to the effectiveness of the training process.

Table 4. 14: Regression Coefficients – Effect of Supervision and Acquisition of Skills

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	30.291	2.731		11.094	.000
	Effect of supervision	.491	.048	.515	10.238	.000

a. Dependent Variable: Acquisition of vocational skills

The results of the study strongly indicate that supervision has a significant impact on the acquisition of vocational skills among TVET trainees during industrial attachment. The statistical analysis revealed a t-statistic of 10.238 with a p-value of 0.001, which is well below the 0.05 significance level. This confirms that supervision is a key factor influencing skill development during industrial training. These findings reinforce the

theoretical perspective that effective supervision is essential in guiding trainees through their practical experiences, ensuring that they not only understand but also apply the skills required in their respective vocational fields.

Given the statistical evidence, the null hypothesis that there is no significant relation between supervision and acquisition of vocational skills during industrial attachment was confidently rejected at the 5% significance level, which means that there is significant relationship between quality of supervision and the vocational skill acquisition. This result aligns with the assumption that close guidance and feedback from supervisors during industrial attachment provide the necessary support for trainees to refine their skills. This relationship between supervision and skill acquisition is particularly important in the context of TVET, where hands-on experience is vital for skill development.

Moreover, the findings show that for every one-unit increase in supervision, there was a corresponding 0.491-unit increase in the acquisition of vocational skills. This suggests that the more intensive and structured the supervision, the greater the impact on the trainees' ability to acquire relevant vocational skills. This finding highlights the importance of not only the frequency but also the quality of supervision. Therefore, it is imperative for both TVET institutions and industrial partners to invest in skilled supervisors who can provide targeted, constructive feedback and foster a learning environment that is conducive to skill development.

Thus, the model equation is:

$$Y = 30.291 + 0.491X \quad \text{……..(iii)}$$

Where,

Y- Acquisition of skills

X- Supervision during attachment

Recent studies have increasingly highlighted the pivotal role that supervision plays in enhancing the acquisition of vocational skills during industrial attachment. As a researcher examining this area, it is evident that effective supervision is crucial for facilitating the skill development of trainees. For instance, the study by Kiptum and Choge (2023), titled "Effectiveness of Supervised Industrial Attachment Programme in Technical and Vocational Education Training (TVET) Institutions in the North Rift Region, Kenya," provides compelling evidence that supervisors significantly contribute to the success of industrial attachment programs. Their roles extend beyond mere oversight; they are responsible for maintaining trainee logbooks and acting as liaisons between workplace organizations and TVET institutions. This intermediary function ensures that trainees are provided with clear guidance and support throughout their attachment, ultimately enhancing the acquisition of vocational skills.

Similarly, the study by Ajao (2023) titled "The Influence of Supervisors in the Implementation of Industrial Attachment Program in TVET Institutions in Nigeria" further strengthens this perspective. Ajao's research found that the interaction between institution-based and industrial-based supervisors plays a vital role in improving the industrial attachment experience. This collaboration fosters an environment conducive to the nurturing of job-ready TVET graduates. From a researcher's standpoint, these findings underscore the importance of a coordinated approach between academic

institutions and industry partners. It is clear that when both parties actively engage with trainees, the quality of the training experience is significantly enhanced, leading to graduates who are more prepared to enter the workforce.

These studies collectively emphasize the necessity of robust supervisory frameworks in industrial attachment programs. As a researcher, it becomes evident that the success of such programs is not solely dependent on the theoretical knowledge imparted in the classroom but also on the practical support and guidance provided by supervisors in the workplace setting. Thus, TVET institutions and industry partners must ensure that supervisory practices are well-defined and effectively executed to maximize the vocational skills acquisition of trainees.

One supervisor responded:

"*During the industrial attachment, we tolerate some unintentional mistakes made by the trainees and we try to correct them since this is the only time they can do so. However, once they graduate, there is no room for silly mistakes {laughs}. Therefore, attachment exposure is necessary for the trainees to make mistakes, be excused and be corrected. It is time for cementing their skills once and for all."* – Supervisor 3

Industries do have sophisticated machines and equipment which the trainees are not familiar with. This calls for supervision and guidance on how to use, care and maintain them. As one supervisor reported:

"*Sometimes we have "strange" machines and equipment that trainees find difficult to operate, or have to operate them under close supervision to avoid possible accidents and breakages. Most TVET institutions have inadequate relevant training tools and*

equipment for trainees' exposure and practice. In industries, the trainees get full exposure in handling different type of work equipment, facilities and situations." – Supervisor 13

A study titled, "The Effect of Supervised Work Experience on the Acquisition of Employability Skills among Malaysian Trainees" by Rashid and Jalil (2021) indicates that trainees who participated in supervised work experiences achieved a higher level of employability skills compared to those who did not. The findings suggest that supervised work experiences influence the acquisition of employability skills, facilitating the transition from colleges to work

These studies collectively affirm that effective supervision during industrial attachments is pivotal for trainees to acquire essential vocational skills, thereby enhancing their employability and readiness for the workforce.

In another study, Chiweshe *et al.* (2021) found that trainees were responsible for securing their own placements, leading to challenges in finding suitable positions. Although trainees received adequate supervision, issues such as insufficient pre-orientation and a lack of coordination in the industrial attachment process were noted, potentially affecting the quality of vocational skill acquisition.

While previous studies have highlighted the positive impact of supervision during industrial attachments on the acquisition of vocational skills, some research presents challenges and limitations associated with supervisory practices.

Kathuri-Ogola *et al.* (2022) identified that supervisors often lacked a clear understanding of practicum expectations and the academic preparation of trainees. This misalignment

led to difficulties in orienting trainees to community-based fieldwork, hindering their ability to link theory to practice effectively. This study examined the impact of three dimensions of guidance; planning, support, and training provided by traineeship supervisors. The results revealed that only the quality of training offered by supervisors positively influenced trainees' satisfaction with their traineeship experience.

For instance, a study published in the Journal of Business and Psychology examined the effects of supervisor humour on employee well-being and performance. The research found that while self-enhancing humour by supervisors was generally positive, aggressive humour negatively impacted employees' psychological well-being. This suggests that not all forms of approachable behaviour, such as humor, are beneficial; the nature and context of the behaviour play critical roles in determining its impact.

Dampson (2022) examined how different supervisory styles coaching, mentoring and abusive supervision affect the professional development of trainee doctors. He highlighted how supportive supervisory practices positively influence talent development, while abusive supervision can hinder acquisition. In the same vein, Bor (2021) concluded that supportive supervisory practices positively influence talent development, while abusive supervision can hinder acquisition.

These findings underscore the complexities of supervision during industrial attachments, highlighting factors such as clarity of expectations, placement coordination and the quality of supervisory guidance can significantly influence the effectiveness of vocational skill.

Effective supervision during industrial attachment enhances trainees' technical competence, work readiness, and confidence by providing guidance, feedback, and mentorship. It ensures that training objectives are met, aligns acquired skills with industry requirements, and promotes professional growth through continuous monitoring and support, thereby strengthening the quality and relevance of vocational skill development in TVET institutions.

4.8 Descriptive Analysis of Acquisition of Vocational Skills among TVET Trainees

This section presents the opinions of trainees on acquisition of vocational skills during industrial attachment among TVET trainees. A five-point Likert scale was used to collect Likert type data on acquisition of vocational skills.

The results were presented in table 4.15 as follows;

Table 4. 15: Acquisition of Vocational Skills

INDICATOR	SD	D	NS	A	SA	Mean	SD
I generate innovative solutions to challenges	0%	0%	22(8%)	88(30%)	181(62%)	4.47	0.796
I can analyze real-world problems	0%	20(7%)	50(17%)	61(21%)	161(55%)	4.23	0.977
I collaborate with others to brainstorm & implement problem-solving Strategies	0%	15(5%)	0%	39(13%)	239(82%)0	4.69	0.849
I demonstrate resilience when facing obstacles	0%	0%	0%	131(45%)	161(55%)	4.51	0.571
Skills acquired have prepared me for future employment	6(2%)	0%	0%	79(27%)	207(71%)	4.64	0.676
Have become more responsible for tasks assigned to me	0%	0%	23(8%)	88(30%)	181(62%)	4.47	0.796
Attachment experience helped me improve my ability to meet deadlines	0%	20(7%)	50(17%)	61(21%)	161(55%)	4.23	0.977
I developed a better understanding of workplace ethics and professionalism during my attachment	0%	15(5%)	0%	38(13%)	239(82%)	4.69	0.849
I gained hands-on experience with tools, equipment and software relevant to my field	0%	0%	0%	131(45%)	161(55%)	4.51	0.571
Attachment experience improved understanding of industry standards and practices	6(2%	0%	0%	79(27%	207(71%	4.64	0.676
Have become more adaptable to new tasks and environments	12(4%)	3(1%)	12(4%)	70(24%)	196(67%)	4.49	0.927
My communication skills improved as a result of interactions with colleagues and supervisors	0%	0%	50(17%)	96(33%)	146(50%)	4.28	0.864
I developed better time management skills	0%	3(1%)	12(4%)	50(17%)	228(78%)	4.70	0.617

The respondents were required to rate their opinions on whether they generate innovative solutions to challenges encountered during industrial attachment. A large proportion, 269 (92%), of the respondents agreed with this assertion, while 22 (8%) remained undecided, and notably, none disagreed. This overwhelming agreement suggests a strong perceived link between industrial attachment and the development of innovative problem-solving skills among trainees. The calculated mean score of 4.47, although slightly below the composite mean of 4.50, still reflects a generally positive perception. This implies that the experience of industrial attachment fosters a mind-set geared towards innovation and creativity.

Furthermore, the standard deviation of 0.796, which was above the composite standard deviation of 0.145, indicates a wider range of responses. This variability may reflect differences in the quality of industrial attachment experiences, the nature of challenges faced, or the level of mentorship and support received during attachment. These findings to imply that while the majority of trainees recognize and report growth in innovation, the extent of this growth may be influenced by contextual factors within their respective attachment environments. Nevertheless, the data clearly underscores the role of industrial attachment in nurturing innovative capacity among trainees.

The results further reveal that 222(76%) of the respondents agreed on being able to analyse real-world problems encountered during industrial attachment 20 (7%) were not sure and 50(17%) of the respondents disagreed. The mean score was 4.23. The standard deviation was 0.971 which was above the composite standard deviation of 0.145 indicating a more variability in responses. Indicating a high level of satisfaction, amongst the respondents.

On whether trainees feel adequately prepared to collaborate with others to brainstorm and implement problem-solving strategies, the analysis deduce that majority of the respondents represented by 277(95%) were in agreement with the statement, none remained neutral and only 15(%) disagreed. Mean score yielded was 4.69 which was above the composite mean of 4.50, indicating a positive influence on composite mean and standard deviation was 0.849 which was below the composite standard deviation of 0.145 indicating a less variability in responses. Majority of the respondents were in agreement with the statement.

The results further show that all the respondents (100%) agreed that on demonstrating resilience when facing obstacles. Mean score yielded was 4.51 which was slightly above the composite mean of 4.50, indicating a positive influence on composite mean. Standard deviation was 0.571which was above the composite standard deviation of 0.145 indicating no variability in responses. All the respondents were in agreement with the statement.

On whether skills acquired during attachment prepare trainees for future employment, the results clearly reveal that majority of the respondents 286(98%) were in agreement with the assertion while 6(2%) disagreed on the same statement. The mean score was 4.64 which was above the composite mean of 4.50 indicating a positive influence on the composite mean. The standard deviation was 0.676 which was above the composite standard deviation of 0.145 indicating a more variability in responses. This clearly indicate that trainees gain valuable skills which prepare them for employment.

The research further sought to find out whether trainees become more responsible and accountable for tasks assigned to them. Data analysis from above Likert scale deduce that 269 (92%) of the respondents were in agreement and 23(8%) were undecided. The mean score 4.47 which was below the composite mean of 4.50, indicating a negative influence on composite mean. The standard deviation was 0.769 which was above the composite standard deviation of 0.145 indicating a more variability in responses. Indicating a high level of agreement, the respondents.

Furthermore, on whether attachment experience help trainees improve their ability to meet deadlines, the research clearly shows that majority of the respondents 222(76%) were in agreement with the statement, 50(17%) not sure while only 20(7%) of the respondents disagreed. The mean score 4.23 which was below the composite mean of 4.50 indicating a negative influence on composite mean. The standard deviation was 0.977 which is above the composite mean of 0.145 indicating more variability in responses.

The results further show that 279(95%) of the respondents were in agreement with developing a better understanding of workplace ethics and professionalism during attachment and only 15(5%) disagreed on the same assertion. 15(5%) were not sure. The mean score 4.69 which was below the composite mean of 4.50, indicating a positive influence on composite mean. The standard deviation was 0.849 which was above the composite standard deviation of 0.145 indicating a more variability in responses. Indicating a high level of satisfaction, amongst the respondents.

On whether trainees gained hands-on experience with tools, equipment and software relevant to their field, the research clearly show that all the respondents 292(100%) were in agreement with the statement. The mean score 4.51 which was above the composite mean of 4.50, indicating a positive influence on composite mean. The standard deviation was 0.571 which was above the composite standard deviation of 0.145 indicating a more variability in responses. Indicating a high level of satisfaction, amongst the respondents.

The Likert Scale data analysis deduce that a large proportion of 286(92%) respondents agreed while only 6(2%) of the respondents disagreed on the statement attachment experience improved understanding of industry standards and practices. The mean score 4.64 which was above the composite mean of 4.50, indicates a positive influence on composite mean. The standard deviation of 0.676 which is above the composite standard deviation of 0.145 meaning a more variation in responses. This implies that attachment experience improves understanding of industry standards and practices.

Additionally, respondents rated their opinions on whether they become more adaptable to new tasks and environments during attachment. Data analysis clearly show that 266(91%) were in agreement 12 (4% were not sure while 15(5%) disagreed. The mean score 4.49 which was below the composite mean of 4.50, indicating a negative influence on composite mean. The standard deviation was 0. 927 which was above the composite standard deviation of 0.145 indicating a more variability in responses. Indicating a high level of satisfaction, amongst the respondents.

The study further sought to find out whether communication skills improved as a result of interactions with colleagues and supervisors. Data analysis from above Likert scale

show that 242(83%) of the respondents were in agreement with the assertion. 17%(50) were not sure and none disagreed. The mean score 4.28 which was below the composite mean of 4.50, indicating a negative influence on composite mean. The standard deviation was 0.864 which was above the composite standard deviation of 0.145 indicating a more variability in responses. This indicates a high level of satisfaction, amongst the respondents.

Investigation on whether trainees developed better time management skills, the research clearly show that majority of the respondents 278 (95%) were in agreement with the statement, 12(4%) were not sure while only 3 (1%) of the respondents disagreed. The mean score 4.70 which was above the composite mean of 4.50, indicating a positive influence on composite mean. The standard deviation was 0.617 which was above the composite standard deviation of 0.145 indicating a more variability in responses this indicates a high level of satisfaction, amongst the respondents.

4.9 Analysis of the Influence of Industrial Attachment Practices on Acquisition of Vocational Skills among TVET Trainees in Kenya

Multiple linear regression analysis was used to establish the influence of industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya.

H_0; There is no significant relationship between industrial attachment practices on acquisition of vocational skills among TVET trainees in Kenya.

The results are shown in Table 4.16, 4.17 and 4.18

Table 4. 16: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.869[a]	.755	.752	3.139	.755	295.754	3	288	.000

a. Predictors: (Constant), Effect of supervision, Induction process , Tasks assigned

b. Dependent Variable: Acquisition of vocational skills

Table 4.16 shows that the R-squared value is 0.755. The results of this study indicate that induction process, tasks assigned during attachment and supervision were responsible for 75.5% of the variability on acquisition of vocational skills among TVET trainees in Kenya. The remaining 24.5% can be attributed to other factors that were not explicitly addressed in the study.

Table 4. 17: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8742.306	3	2914.102	295.754	.000[b]
	Residual	2837.704	288	9.853		
	Total	11580.010	291			

a. Dependent Variable: Acquisition of vocational skills

b. Predictors: (Constant), Effect of supervision, Induction process, Tasks assigned

The findings displayed in Table 4.17 indicate that the independent variable, induction process, tasks assigned and effect of supervision have a substantial predictive effect or it is significantly useful on explaining acquisition of vocational skills among TVET trainees in Kenya. This conclusion is drawn from the analysis of variance (ANOVA) test conducted at a significance level of 0.05. The significance value of $F\ (1, 291) = 295.754$, $p = 0.001$) is below the preset significance limit of 0.05, providing support for this assertion.

Table 4. 18: Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.807	2.153		-.375	.708
	Induction process	.772	.037	.779	21.113	.000
	Tasks assigned	.068	.043	.063	1.587	.004
	Effect of supervision	.253	.032	.266	7.921	.000

a. Dependent Variable: Acquisition of vocational skills

A multiple regression was run to predict effect of induction process, tasks assigned and supervision on acquisition of vocational skills among TVET trainees in Kenya. These variables statistically significantly predicted acquisition of vocational skills among TVET trainees in Kenya. F (1, 291) = 295.754, p = 0.001), R^2 = 0.755. All the three variables added statistically significantly to the prediction on acquisition of vocational skills among TVET trainees in Kenya (P < 0.05). Hence, the null hypothesis was rejected at a 5% level of significance, suggesting that there was a significant relationship. Therefore, an increase of one unit in induction process, was associated with a 0.772 increase on acquisition of vocational skills among TVET trainees in Kenya (t (291) = 21.113, p < 0.05), an increase of one unit in task assigned, was associated with an increase of 0.068 on acquisition of vocational skills among TVET trainees in Kenya (t (291) = 1.587, p<0.05) and an increase of one effect of supervision was associated with a 0.253 increase on acquisition of vocational skills among TVET trainees in Kenya (t (291) = 7.921, p < 0.05).

Therefore, the model equation is

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \varepsilon$$

$$Y = 0.807 + 0.772X_1 + 0.068X_2 + 0.253X_3$$

Where,

Y- Acquisition of vocational skills

X_1- Induction process

X_2- Tasks assigned

X_3- Supervision

Previous studies consistently highlight the importance of well-structured industrial attachment practices in enhancing the acquisition of vocational skills among TVET trainees. This is particularly evident in comprehensive induction process, task relevancy, and effective supervision, which play a crucial role in bridging the gap between theoretical knowledge and practical application. For instance, Mwaura *et al.* (2022) demonstrated that the duration of industrial attachment, combined with the tasks assigned and the quality of supervision, significantly influenced the development of employability skills among TVET trainees in Nairobi County. This bring into line the argument that aligning attachment tasks with course content not only enhances skill acquisition but also ensures that trainees are well-prepared for the workforce. Such alignment ensures that trainees gain real-world experience that complements their academic training, thereby improving their overall competence.

Further reinforcing this argument, Mensah and colleagues (2020) underscore that exposure to relevant tasks during industrial attachment allows trainees to make mistakes and learn under supervision, which, in turn, fosters their adaptability and interpersonal skills. This insight is critical because it highlights how real-world experience, under guided supervision, is essential for preparing trainees for the dynamic and often unpredictable nature of the workplace. This as an essential facet of vocational training, as it not only enhances technical skills but also develops soft skills that are increasingly valued by employers. These experiences are key to shaping well-rounded professionals who can thrive in a competitive job market.

Moreover, the findings of Biraori and Ouko (2023) further enrich this discussion by providing quantitative data on the benefits of industrial attachment. The study revealed that hands-on practical exposure was cited by 57% of participants as crucial for skill development, while 54% believed that it helped bridge the gap between academic learning and practical reality. The research also highlighted that industrial attachment contributed to knowledge enhancement (59%) and career growth (50%). These statistics provide compelling evidence of the multifaceted benefits of industrial attachment, suggesting that when properly structured, such programs do not only equip trainees with technical skills but also prepare them for career advancement. This comprehensive view underscores the necessity of a well-rounded industrial attachment program that extends beyond mere task completion to fostering career readiness.

One supervisor likened attachment with driving school curriculum and said’;

"*When we look at the trainees in a driving school, we see them first drive toy cars on the table and are also taught a lot of additional theories of driving. They refer to this as theory. They then go into the real car on a real road to apply their theoretical knowledge. I consider the same applies as far as TVET trainees are concerned. When they come for industrial attachment, it is like practicing driving on the road. This kind of exposure is healthy for their skill training.*" – Supervisor 15

In conclusion, the evidence from this study, supported by existing research, underscores the critical role of induction processes and structured industrial attachment in enhancing vocational skill acquisition. It highlights the importance of aligning training with real-world tasks and ensuring effective supervision, which together enable TVET trainees to transition seamlessly from classroom learning to practical, workplace-ready professionals. These findings suggest that TVET institutions and employers should continue to refine their industrial attachment programs to foster both technical proficiency and essential soft skills, ensuring that trainees are well-prepared for the competitive job market.

Table 4. 19: Summary of Study Hypothesis

Hypothesis	**P Value**	**Verdict**
H_{01}: Industrial attachment induction process has no effect on the acquisition of	0.001	Reject

vocational skills among TVET trainees in Kenya.		
H_{02}: Tasks assigned to trainees during industrial attachment do not affect the acquisition of vocational skills among TVET trainees in Kenya.	0.001	Reject
H_{03}: There is no relationship between the supervision provided during industrial attachment and the acquisition of vocational skills among TVET trainees in Kenya.	0.001	Reject

4.10 Descriptive Analysis of Trainee Attitude and Organizational Culture on Acquisition of Vocational Skills among TVET Trainees in Kenya.

The study sought to find out the moderating effect of trainee attitude and organizational culture on acquisition of vocational skills among TVET trainees in Kenya. The trainees were required to rate their opinions against five statements on a five-point Likert scale with a score of 1 indicating 'Strongly Disagree' and 5 indicating 'Strongly Agree'. The ratings were analysed as frequencies, mean, standard deviation (Std), the composite mean and composite standard deviation. The results were presented in Table 4.4 (SA- Strongly Agree, A- Agree, NS- Not sure, D- Disagree, SD- Strongly Disagree.

Table 4. 20: Analysis of Trainee Attitude and Organisational Culture

INDICATOR	SD	D	NS	A	SA	Mean	StD
Clear definition of roles and responsibilities enhances ability to acquire vocational skills	9(3%)	32(11%)	12(4%)	44(15%)	195(67%)	4.32	1.155
Teamwork and collaboration help to acquire more vocational skills	34(12%)	20(7%)	44(15%)	123(42%)	71(24%)	3.57	1.268
Organization's culture is flexible and supports development	18(6%)	15(5%)	25(9%)	0%	234(80%)	4.03	1.108
Necessary tools and resources are provided to facilitate skill development.	9(3%)	32(11%)	12(4%)	43(15%)	194(67%)	4.32	1.155
Working environment is conducive for learning	34(12%)	20(7%)	44(15%)	122(42%)	70(24%)	3.57	1.268
Organizational culture emphasized hands-on experience	0%	20(7%)	0%	113(39%)	158(54%)	4.22	0.978
Open communication, made it easy to ask questions and learn.	9(3%)	6(2%)	0%	37(12%)	243(83%)	4.70	0.829
I was open and responsive to feedback	0%	20(7%)	0%	113(39%)	158(54%)	4.22	0.978
I was enthusiastic to learn	9(3%)	6(2%)	0%	37(12%)	243(83%)	4.70	0.829
I took challenges positively	0%	0%	0%	126(43%)	167(57%)	4.53	0.574
I was committed and dedicated to assigned tasks	0%	20(7%)	0%	113(39%)	158(54%)	4.22	0.978
I felt motivated to learn new skills	9(3%)	12(4%)	0%	34(12%)	243(83%)	4.70	0.829
I was open to learning from my supervisors and colleagues	0%	15(5%)	0%	81(28%)	186(67%)	4.50	0.932
Composite Mean and Standard Deviation						4.28	1.01

On whether clear definition of roles and responsibilities enhances ability to acquire vocational skills, the analysis deduce that majority of the respondents represented by 239(82%) were in agreement with the statement, 12(4%) remained undecided and 41(14%) disagreed. Mean score yielded was 4.32 which was above the composite mean of 4.28, indicating a positive influence on composite mean and standard deviation was 1.115 which was above the composite standard deviation of 1.01 indicating a more variability in responses. Majority of the respondents were in agreement with the statement.

The researcher further sought to find out whether organization's culture is flexible and supports development. Data analysis from above Likert scale show that 234 (80%) of the respondents were in agreement with the assertion, 25(9%) were not sure while only 33(11%) disagreed with the statement. The mean score 4.03 which was below the composite mean of 4.28, indicating a negative influence on composite mean. The standard deviation was 1.108 which was above the composite standard deviation of 1.01 indicating a more variability in responses. Indicating a high level of satisfaction, amongst the respondents.

On the question of whether the trainees are eager to learn, the research concluded that most of the respondents 277(95%) responded to the statement and only 15 (5%) responded to the statement. The average was 4.70 that exceeded the composite mean of 4.28 and this showed that it had a positive effect on composite mean. The standard deviation was 0.829 that was lower compared to composite standard deviation of 1.01

implying that it was less variable. This means that most of the respondents held the view that trainees are eager to learn.

The findings also show that there was a 292(100) percent agreement among the respondents that they would take challenges positively. The average score was 4.53 exceeding the composite mean of 4.28 giving a positive effect to composite mean. Standard deviation was 0.574 and it was less than composite standard deviation of 1.01 meaning a less variation.

In the questions of whether the respondents were committed and dedicated to the assigned work, the above Likert scale data analysis indicates that a large pool of 272 (93) respondents affirmed to the statement and 20(7) respondents against the statement. The average score was 4.22 that was lower than the composite mean of 4.28 and this means that there was a negative effect on the composite mean. Its standard deviation was 0.978 as compared to composite standard deviation of 1.01 meaning that the spread of the response to the item is smaller than the variable response. This is a clear indication that trainees were loyal and devoted to given tasks.

The research question was influenced by the desire to determine whether the trainees were motivated to acquire new skills. The statistics of the above Likert Scale further indicate that 271(93%) of the people answered in the affirmative whereas 21(7%) voted in the negative. The resultant mean score was 4.70, and it was greater than the composite mean of 4.28 hence positive effect on composite mean. The standard deviation was 0.829 that was lower than composite standard deviation of 1.01 that indicated lesser variability

of responses. This is a clear indication that the trainees were motivated to acquire new skills.

On the question of whether the trainees were receptive to being taught by the supervisors and colleagues, the analysis reveals that a large percentage of respondents 267 (95%) said yes and only 15(5%) said no. Mean score obtained was 4.50 that was equal to that of composite mean, meaning that composite mean was positively affected. The standard deviation n was 0.932 that was less than the composite standard deviation of 1.01 that depicted less variability in answers.

Also, in the question that required respondents to provide an answer that included whether they are being given the tools and resources needed to develop the skills, the majority of the respondents who 238 (82) were in agreement with this statement, 12(4%) were not sure and only 42(14) of the respondents disagreed with the statement. The mean score 3.57 that was lower than the composite mean 4.28 that showed negative effect on composite mean. The standard deviation was 1.268 that was higher than the composite standard deviation of 1.01 that showed higher variability of the responses.

The findings also indicate that 192(66) percent of the respondents agreed with the fact that working environment was conducive to learning, 56(19) percent disagreed and 44(15) percent were not sure of the same claim. The mean score 3.57 that was greater than the composite mean 4.28 which is the positive effect on composite mean. The standard deviation 1.268 that exceeded the composite standard deviation of 1.01 which had smaller variability in responses.

The Likert Scale data analysis infer that the highest percentage of 271(93) respondents concurred and 21(7) of the respondents disagreed to the statement that organizational culture placed emphasis on hands-on experience. The average score of 4.22 that was less than the composite mean of 4.28 thus negative effect on composite mean. The standard deviation was 0.978 that was lower than the composite standard deviation of 1.01 implying that there was less variability on the responses. It means that organization culture focused on practical experience.

The findings also show that 271(93) percent of the respondents affirmed that open communication, made it easy to ask questions and learn tasks unlike 21(7) percent who disagreed on the same. The risk score 4.70 was found to be greater than the composite mean 4.28, which means that the risk has a positive effect on composite mean. The standard deviation was 0.829 that was less than the composite standard deviation of 1.01 that implied that there was lower variability in responses. Among the respondents, it has indicated that there is a high level of satisfaction.

Majority of the respondents 272(93)% of the respondents affirmed to being open and responsive to feedback and only 21(7) of the respondents disagreed with the same assertion. The negative effect on composite mean was observed as the mean score was lower than that of the composite mean 4.22 was below 4.28. The value of the standard deviation was 0.978 and that was lower than the composite standard deviation of 1.01 meaning that there was less variability of responses. This means that trainees are receptive to received feedback.

4.11 Analysis of the Moderating Effect of Trainee Attitude and Organizational Culture on the Relationship between Industrial Attachment Practices and Acquisition of Vocational Skills among TVET Trainees in Kenya

The research aimed at examining the moderating role of the attitude of trainee and organisational culture in determining the relationship between the industrial attachment practices and acquisition of vocational skills among the TVET trainees in Kenya. This was determined by use of hierarchical regression test. The null hypothesis that was used in the study has been stated below and tested at the level of 0.05.

H_0: Trainee's attitude and organisational culture has no effect on industrial attachment practices and acquisition of vocational skills among TVET trainees in Kenya.

The results are shown in Table 4.21, 4.22 and 4.23

Table 4. 21: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.869[a]	.755	.752	3.139	.755	295.754	3	288	.000
2	.911[b]	.830	.827	2.622	.075	125.703	1	287	.000
3	.915[c]	.837	.833	2.577	.008	4.412	3	284	.005

a. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned
b. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned, Trainee attitude and organizational culture
c. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned, Trainee attitude and organizational culture, Effect of supervision and Trainee attitude and organizational culture, Induction process and trainee attitude and organizational culture, tasks assigned and Trainee attitude and organizational culture
d. Dependent Variable: Acquisition of vocational skills

The findings indicated that the initial model that showed significance of supervision effect, induction process, tasks assigned and acquisition of vocational skills was significant (R2 = 0.755 p=0.000 < 0.05). The second model which assessed the relationship between induction process, supervisor effect, tasks assigned and trainee attitude and organizational culture in terms of acquisition of vocational skills was significant (R2 = 0.830, p= 0.000 < 0.05). When the interaction between the attitude of the trainee and the organizational culture was added to the main predictor variable in the model, the value of R2 rose to 0.837, and it was significant (p=0.001 < 0.05). The identified change indicates that the models are reliable and consistent in predicting the effect of induction process, supervision effect, relevance of assigned tasks and the attitude of the trainees and organizational culture in the acquisition of vocational skills.

Table 4. 22: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8742.306	3	2914.102	295.754	.000[b]
	Residual	2837.704	288	9.853		
	Total	11580.010	291			
2	Regression	9606.627	4	2401.657	349.286	.000[c]
	Residual	1973.383	287	6.876		
	Total	11580.010	291			
3	Regression	9694.507	7	1384.930	208.602	.000[d]
	Residual	1885.503	284	6.639		
	Total	11580.010	291			

a. Dependent Variable: Acquisition of vocational skills
b. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned
c. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned, Trainee attitude and organizational culture
d. Predictors: (Constant), Effect of supervision, Induction process, tasks assigned, Trainee attitude and organizational culture, Effect of supervision and Trainee attitude and organizational culture, Induction process and trainee attitude and organizational culture, tasks assigned and Trainee attitude and organizational culture

To ascertain the relevance of the model in predicting the effects of industrial attachment practices and acquisition of vocational skills, the ANOVA test was conducted. At 0.05 level of significance, ANOVA test, in Model 1, revealed that in this model the independent variables, i.e. effect of supervision, induction process and tasks assigned, were predictors of acquisition of vocational skills as indicated by the significance value, which is less than the level of significance ($p=0.001 < 0.05$).

In the Model 2, moderating variable (trainee attitude and organisational culture) was added, at the 0.05 level of significance, the ANOVA test showed that the new predictor variables effected acquisition of vocational skills as indicated by its significance value less than 0.05 level of significance ($p=0.001 < 0.05$). Finally, when the interaction terms were introduced in Model 3, the independent variables; effect of supervision, induction process and tasks assigned, trainee attitude and organizational culture, induction process trainee attitude and organizational culture, tasks assigned trainee attitude and organizational culture and effect of supervision trainee attitude and organizational culture were taken to be the indicators of the acquisition of vocational skills as indicated by the significance value less than 0.05 level of significance ($p=0.001 < 0.05$).

Table 4. 23: Regression Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.807	2.153		-.375	.708
	Induction process	.772	.037	.779	21.113	.000
	Tasks assigned	.068	.043	.063	1.587	.004
	Supervision	.253	.032	.266	7.921	.000
2	(Constant)	-5.263	1.842		-2.858	.005
	Induction process	.388	.046	.392	8.454	.000
	Tasks assigned	-.026	.036	-.023	-.706	.481
	Supervision	.192	.027	.201	7.033	.000
	Trainee attitude and organizational culture	.518	.046	.477	11.212	.000
	(Constant)	-26.179	11.450		-2.286	.023
	Induction process	1.093	.225	1.102	4.855	.000
	Tasks assigned	-.732	.299	-.670	-2.444	.015
	Supervision	.568	.200	.596	2.836	.005
	Trainee attitude and organizational culture	.933	.234	.859	3.984	.000
	Induction process and trainee attitude and organizational culture	-.013	.004	-1.324	-3.190	.002
	Tasks assigned and Trainee attitude and organizational culture	.013	.005	1.086	2.377	.018
	Effect of supervision and Trainee attitude and organizational culture	-.007	.004	-.595	-1.874	.062

a. Dependent Variable: Acquisition of vocational skills

From the findings in Table 4.23; at 5% level of significance, induction process (p=0.0.001 < 0.05), tasks assigned (p=0.001< 0.05) and effect of supervision (p=0.001< 0.05) were significant predictors of acquisition of vocational skills. On incorporating trainee attitude and organizational culture, induction process (p=0.0.001 < 0.05), and effect of supervision (p=0.001< 0.05) significant predictors of acquisition of vocational skills except tasks assigned (p=0.481> 0.05). On including the interaction terms,

induction process* trainee attitude and organizational culture ($p < 0.05$), tasks assigned * trainee attitude and organizational culture ($p < 0.05$) and effect of supervision * trainee attitude and organizational culture ($p > 0.05$). This shows that there is a positive association between the predictor variables induction process and supervision with trainee attitude and organizational culture except effect of tasks assigned. Hence, the observed association indicates that trainee attitude and organizational culture have a moderating role in the connection between induction process and supervision.

Therefore, the model equation is

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_1 Z + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \varepsilon$$

$$Y = -26.179 + 1.093 X_1 - 0.732 X_2 + 568 X_3 + 0.933 Z - 0.013 X_1 Z - 0.013 X_2 Z - 0.007 X_3 Z$$

Where

Y- Acquisition of vocational skills.

X_1-Induction process

X_2- Tasks assigned

X_3- Supervision

Z – Trainee attitude and organizational culture.

Several studies have examined how trainee attitudes influence the acquisition of skills during training programs. These studies collectively underscore the significant role that trainee attitudes play in the successful acquisition and application of skills during industrial training. Positive attitudes towards training methods such as experiential

learning, blended learning, and simulation-based learning can significantly enhance trainees' engagement and performance.

For instance, research on "Effects of Trainee Characteristics, Training Attitudes, and Training Need Analysis on Motivation to Transfer Training″ by Sahoo and Mishra (2019) found out that positive training attitudes significantly enhance trainees' motivation t, thereby influencing skill acquisition and application. Trainees adaptability to workplace environment is a sign of acquired interpersonal skills which is key in employability perspectives. This collaborates with what one supervisor said;

Trainees gradually start taking the assigned work more seriously than when in colleges. This kind of maturity is not only observed in industry but also in social cycles.

Colquitt *et al* (2020) discusses how various trainee attributes, including attitudes, influence the effectiveness of training programs. He highlights that trainees' positive attitudes can lead to better engagement and learning outcomes, thereby facilitating skill acquisition. It is clear that there is strong simulation and practice during the attachment such that the apprentices do not panic as they join and face the real work conditions. This was confirmed by one supervisor who observed:

During IA it is a trial of simulation and the products and services should meet the market demand and clients' satisfaction becomes a reality. Thus, trainees have to be creative and innovative as they meet work challenges and experienced workers. This exposure normally helps graduates to have confidence in whatever they do after the training, hence creates confidence and better acquisition of skills.

A Study by Ramachandran, *et al*. (2024**)** assessed medical interns' perceptions of a blended learning approach combining online and face-to-face training. The interns found the skills training program useful, noting increased confidence and reduced anxiety, which are crucial for effective skill acquisition. The study emphasizes that positive trainee attitudes towards blended learning can enhance the acquisition of practical skills.

Recent studies have underscored the importance of organizational culture in the effective acquisition of skills within the workplace: A study on Organizational Culture and Its Effects on Knowledge Acquisition and Application in the Workplace by Smith and Brown (2024) discusses how cultural values, norms and attitudes within an organization influence knowledge acquisition and application. It suggests that a culture promoting learning and knowledge sharing leads to better skill development among employees.

Another study by Meher, *et al.* (2024) explored how an organizational learning culture affects effectiveness through knowledge sharing and trainee competencies. This study analyses how organizational culture directly influences trainee performance. It concludes that a culture promoting trainee participation and innovation leads to higher job performance and that a learning-oriented culture enhances knowledge sharing and trainee skills leading to improved organizational performance.

A study by Mwaura *et al.* (2022) found out there was good work environment during the attachment as 125 (83.9%) of the trainees agreed. Another 16 (10.7%) were not decided; 6 (4.0%) disagreed and 2 (1.3%) strongly disagreed. The training colleges may not have

given them this kind of real work environment. There was no doubt that skill exposure was necessary and significant to TVET trainees during industrial attachment, and it worked to develop employability skills among the trainees once they graduate from the TVET institutions.

While these studies do not directly address the moderating effect of organizational culture and trainee attitude on the relationship between industrial attachment practices and vocational skills acquisition collectively suggest that organizational culture and trainee attitude plays a significant role in influencing skill acquisition. A positive and supportive organizational culture may enhance the effectiveness of industrial attachment practices, thereby improving the acquisition of vocational skills among TVET trainees.

These studies collectively demonstrate that effective supervision, comprehensive induction processes, task-relevant training, positive trainee attitudes, and a supportive organizational culture are crucial for enhancing skill acquisition and overall trainee performance.

4.12 Basic Tests of Statistical Assumption for TVET Trainees Questionnaire

Diagnostic tests were performed to check the fitness of data in meeting the basic tests of statistical assumptions before inferential statistics was conducted. These included; Tests for Normality, Tests for Multicollinearity and Singularity, test for homoscedasticity and test for homogeneity of variance. This was to guide if to use parametric or non-parametric statistical tests.

4.12.1 Tests for Normality

The normality test was conducted at 95 percent interval. In the case of a p-value whose value is less than 0.05, the null hypothesis is rejected and there is evidence that the tested data was produced by a normally distributed population. In case the p-value exceeds 0.05, then the null hypothesis is not rejected and it indicates that the data was not obtained in a normally distributed population. Kolmogorov-Smirnov (K-S) test and Shapiro-Wilk test (S-W) were conducted in this research. It was tested on the null hypothesis that the data is not being drawn out of a normally distributed population. The ruling was based on a decision and verdict against p value = 0.05. The null hypothesis was discarded on the occurrence of the null p-value being lower than 0.05 and the null being maintained on the occurrence of the null p-value being greater than 0.05.

H_o: The data is not drawn from the normal distribution

The findings are as shown in Table 4.24.

Table 4. 24:Tests for Normality

	Kolmogorov-Smirnov[a](KS)			Shapiro-Wilk(SW)		
	Statistic	**Df**	**Sig.**	**Statistic**	**Df**	**Sig.**
Induction process	.254	292	.000	.735	292	.000
Tasks assigned	.183	292	.000	.837	292	.000
Effect of supervision	.223	29	.000	.806	292	.000
Acquisition of.260 vocational skills		292	.000	.728	292	.000

Table 4.24 was derived using the KS results, which indicated that the data obtained with regards to induction process, tasks assigned, the impact of supervision, training on skills acquisition, the attitude of trainees and the organisational culture had p-value less than 0.05. The null hypothesis, The data is not drawn a normally distributed population is rejected and concluded to the existence of sufficient evidence that data of variables are drawn a normally distributed population.

Conversely, Table 4.14 of the SW results reveals that the data gathered on process of induction, tasks assigned to them, impact of supervision, learning of skills, attitude of trainees and organisational culture had 0. The null hypothesis is rejected and concluded to be that there is sufficient evidence that the data of variables is drawn normally distributed population.

The SW findings were ascertained to be in line with the KS findings that the data on the respondent questionnaire was part of the normally distributed population and was normally distributed. This implies that tests of normality were significant and thus parametric test should be applied to analyze it.

4.12.2 Tests for Multicollinearity and Singularity

The research aimed at determining whether the problem of multi-collinearity among the variables existed. Multicollinearity is the state when the variables under investigation are affected by two or more relationships that is, two or more independent variables are related to one another (Morejon et al.,2025). This is a situation in which independent variables have a high correlation. Multi-collinearity causes the redundant or related variables to be unreliable hence the parameters less interpretable. The Multicollinearity was measured with the help of the tolerance value and Variance Inflation Factor (VIF). The value of tolerance is between 0 and 1 and the value of tolerance below 0.1 implies serious Multicollinearity. VIF value is the inverse of tolerance and this does not have any fixed cut-offs but when VIF value falls between 1 -10 then there is no Multicollinearity. When the VIF is below 1 or above 10 then there is Multicollinearity. Table 4.25 shows the outcome of Multicollinearity test.

Table 4. 25: Test for Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant		
	Induction process	.777	1.614
	Tasks assigned	.641	1.847
	Effect of supervision	.726	1.377

The results in Table 4.25 show that the tolerance values are all above 0.5 and are closer to the maximum value of 1 than to minimum value of 0 which indicates the absence of

Multicollinearity. On the other hand, the VIF values are all close to 1 than 10 indicating the absence of Collinearity and absence of bias in the regression model.

4.12.3 Test for Homoscedasticity

The analysis needed to examine the homoscedasticity and heteroscedasticity of the study before making prudent use of the data through inferential analysis. Homoscedasticity occurs when variance errors of the predictor variable are equal whereas heteroscedasticity does not imply that all levels of the predictor variable have the same variance error, but rather, different level variance errors occur. The lack of proper correction of heteroscedasticity nullifies the statistical tests of relevance like regression analysis thus the risks of inaccurate inferences are high. This may also lead to the possibility of committing a Type I error. In this study, the null hypothesis was tested through the Levene statistics by questioning whether or not the variance of the explained variable is the same in all the levels of explanatory variables. The findings are given in Table 4.26..

Table 4. 26: Test of Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
Induction process	.209	1	290	.048
Tasks assigned	1.791	1	290	.032
Effect of supervision	1.377	1	290	.042
Acquisition of vocational skills	.001	1	290	.041

Levene statistics is significant at $p < 0.05$ that would result in rejecting the null hypothesis but not $p > 0.05$ that would result in accepting the null hypothesis. It is worth mentioning

based on the findings in Table 4.23 that the $p < 0.05$ that suggests that we accept the null hypothesis and conclude that the variances of the dependent variable are constant at different levels of the explanatory variables that satisfies the assumption of homogeneity of variance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the key findings from the study "The Influence of Industrial Attachment Practices on the Acquisition of Vocational Skills among TVET Trainees in Kenya". The chapter presents a summary of findings, conclusions and recommendations.

5.2 Summary of the Findings

The findings of this study were grouped and summarized based on the study's objectives. The objectives were as follows: To establish the effect of induction process on acquisition of vocational skills during industrial attachment among TVET trainees, to determine the influence of tasks assigned to trainees during industrial attachment on acquisition of vocational skills and to establish the effect of supervision in facilitating acquisition of vocational skills among TVET trainees in Kenya.

5.2.1 Demographic factors

The study involved 292 TVET trainees. In terms of gender distribution, 54.8% were male (160 trainees), while 45.2% were female (132 trainees), indicating a relatively balanced gender representation with a slight male majority.

Regarding age, the vast majority of respondents, 93.5% (273 trainees), were aged below 30 years, while only 6.5% (19 trainees) were in the 31–40 years' age bracket. This suggests that most of the trainees were young adults, which is typical for vocational training settings.

5.2.2 To Establish Effect of Induction Process on Acquisition of Vocational Skills During Industrial Attachment among TVET Trainees

The study established effect of the induction process on acquisition of vocational skills during industrial attachment using a 5-point Likert scale. Overall, the mean scores ranged from 4.21 to 4.70, indicating strong agreement with most statements. Notably, the highest-rated indicators were: “Induction process included opportunities to ask questions and receive feedback” and “Practical demonstrations during induction enhanced my ability to perform job-specific tasks” both with a mean of 4.70, suggesting these aspects were particularly impactful and appreciated by the trainees. Other key highlights include: “Induction helped me understand the key skills required for my attachment” and “Induction materials provided were helpful”, both received high ratings (means of 4.51 and 4.52 respectively), showing that the content and delivery of induction were effective.

Trainees also agreed that induction prepared them for practical tasks and familiarized them with the workplace environment, with mean scores of 4.51 and 4.47 respectively. While all indicators received favourable ratings, “Induction helped me understand how my role contributes to the overall goal of the organization” had the lowest mean (4.21), suggesting this area may require improvement to enhance organizational alignment during induction. The standard deviations across most items were relatively low, indicating consistency in trainee responses.

The regression analysis revealed that the induction process exerts a statistically significant positive influence on the attainment of vocational skills ($\beta = 0.837$, $p < 0.05$).

The unstandardized coefficient (B = 0.829) indicates that a one-unit enhancement in the induction process results in an increase of 0.829 units in the acquisition of vocational skills. Consequently, the null hypothesis (H01), which posits that there is no significant effect between the induction process and the acquisition of skills, is rejected. This suggests that improving the induction process can greatly augment the acquisition of vocational skills.

5.2.3 To Determine the Effect of Tasks Assigned to Trainees during Industrial Attachment on Acquisition of Vocational Skills

The study determined effects of tasks assigned to TVET trainees during industrial attachment on acquisition of vocational skills, particularly focusing on the nature and tasks assigned under supervisory guidance. The results indicate an overall positive evaluation of task-related supervision, with most statements receiving high mean scores.

Most respondents strongly agreed that tasks assigned were aligned with their field of study (mean = 4.38) and significantly contributed to skill development (mean = 4.64), confirming that supervision led to meaningful learning experiences. The highest-rated items were: "Tasks assigned align well with my career aspirations" and "Tasks effectively utilized my strengths and abilities “, both with a mean of 4.70. Similarly, "Tasks assigned foster a sense of autonomy" received the highest overall mean of 4.71, suggesting that supervised tasks promoted independence and confidence among trainees.

Respondents also agreed that they could apply theoretical knowledge to practical tasks (mean = 4.48) and that assigned tasks helped build confidence in job-related activities

(mean = 4.48). Trainees viewed the tasks as both challenging (mean = 4.64) and meaningful (mean = 4.52), supporting the idea that supervised tasks were designed to enhance professional competence.

While most items received strong ratings, a few areas showed relatively lower agreement: "Tasks assigned reflect the current needs and trends of the industry" (mean = 4.20),"Complexity of tasks was appropriate for my level of competence" (mean = 4.32),and particularly, "Assignments helped reinforce theoretical knowledge acquired in class", which had the lowest mean score of 3.58 and the highest standard deviation (1.278), suggesting mixed responses and potential misalignment between classroom theory and workplace tasks.

The null hypothesis (H02) posits that there exists no significant relationship between the assigned tasks and the attainment of vocational skills. Nevertheless, the findings of the regression analysis suggest a different conclusion. The coefficient for tasks assigned is 0.591, accompanied by a standard error of 0.054. The corresponding t-value is 10.947, with a significance level (p-value) of 0.000. The p-value presented here is significantly lower than the traditional alpha threshold of 0.05, suggesting that the observed relationship holds statistical significance. Moreover, the standardized Beta coefficient of 0.541 indicates a moderate to strong positive influence of the assigned tasks on the acquisition of vocational skills. The results necessitate the rejection of the null hypothesis (H02), affirming that the pertinence of assigned tasks exerts a statistically significant positive influence on the development of vocational skills. Consequently, the allocation

of pertinent tasks is essential for the advancement of trainees' vocational skill development.

5.3.4 To Establish Effect of Supervision in Facilitating Acquisition of Vocational Skills among TVET Trainees in Kenya

The study evaluated effect of supervision on acquisition of vocational skills during industrial attachment. The findings indicate that trainees generally had positive experiences with their supervisors, with several key aspects rated highly.

The highest-rated items were: “I received constructive criticism from my supervisor” and “Supervisor encouraged me to work independently after providing initial guidance”, both with a mean score of 4.71, indicating that supervisors were perceived as supportive in fostering autonomy and professional growth. Other strongly rated indicators included: “Supervisor took a personalized approach to my development” (mean = 4.35),“Supervisor was approachable” (mean = 4.35), and “Supervision allowed me to confidently take on more complex tasks” (mean = 4.33).Additionally, trainees agreed that supervisors provided: Clear instructions for tasks (mean = 4.32), Motivation to perform well (mean = 4.33),and encouragement to think critically (mean = 4.32).These results reflect effective supervisory engagement, with supervisors seen as accessible, instructive, and motivational.

However, there were areas of moderate concern: “Supervisor was accessible to answer questions” and “Supervisor offered adequate guidance” both had the lowest mean scores

of 3.58 and the highest standard deviation (1.278), suggesting variability in trainee experiences and room for improvement in consistent availability and hands-on support.

Similarly, the statement “Supervision received during attachment was adequate” had a mean of 4.04, and “Supervisor provided constructive feedback” also had a mean of 4.04, indicating general agreement but with less intensity compared to other items.

The unstandardized coefficient (B) reflecting the impact of supervision is 0.491, accompanied by a standard error of 0.048. This indicates that for each one-unit rise in supervision, the attainment of vocational skills escalates by 0.491 units, assuming other variables remain unchanged. The t-value stands at 10.238, with the associated significance level (Sig.) recorded at .000, a figure significantly lower than the traditional alpha threshold of 0.05. The exceedingly low p-value suggests that the influence of supervision on the attainment of vocational skills is statistically noteworthy. Moreover, the standardized Beta coefficient stands at 0.515, indicating a moderately strong positive correlation between supervision and the acquisition of skills. Consequently, the findings necessitate the rejected of the null hypothesis (H03). It can be inferred that supervision exerts a statistically significant positive influence on the development of vocational skills. This suggests that enhanced oversight is poised to facilitate the advancement of vocational competencies in trainees.

5.3 Conclusions

This study set out to establish how industrial attachment practices influence the acquisition of vocational skills among TVET trainees in Kenya. Specifically, it focused

on three key industrial attachment practices: the induction process, the tasks assigned and the effectiveness of supervision during attachment. The study found that induction, tasks assigned and supervision are critical to vocational skill acquisition among TVET trainees during industrial attachment. Effective induction enhances trainee preparedness and confidence, relevant tasks support career-aligned skill development and quality supervision fosters competences supported by Patel *et al*., 2023; Mchete and Shayo ,2020 & Ranatunga *et al*., 2024. However, gaps in understanding organizational culture, weak theory-practice integration and inconsistent supervision point to areas needing improvement for better training outcomes

5.3.1 Effect of Induction Process on Acquisition of Vocational Skills during Industrial Attachment among TVET Trainees

The analysis of the responses reveals that the induction process plays a crucial role in equipping TVET trainees with the necessary skills, knowledge and confidence to effectively engage in their industrial attachment tasks. The high mean scores across nearly all indicators, particularly in areas such as opportunities for feedback, practical demonstrations and the inclusion of hands-on activities, demonstrate that the induction process were not only well-received but also effective in preparing trainees for real-world workplace experiences.

Most respondents agreed that induction helped them understand their roles, familiarize themselves with the workplace environment and gain confidence in executing assigned tasks. Furthermore, the provision of helpful materials and practical exposure during induction further contributed to trainees' preparedness. While slightly lower ratings were

observed in areas like understanding organizational goals and culture, these still reflected overall positive perceptions, suggesting that the majority of the induction content was relevant and impactful.

The findings affirm that a well-structured induction process is instrumental in enhancing trainee readiness and performance during industrial attachment. This underscores the need for TVET institutions and host organizations to continue investing in comprehensive and continuous induction process as a foundational component of successful vocational training.

The null hypothesis (H01), which posits that industrial attachment induction process has no effect on the acquisition of vocational skills among TVET trainees in Kenya, was rejected. Objective 1 was therefore achieved as findings showed that the induction process significantly enhanced vocational skill acquisition. This suggests that improving the induction process can greatly augment the acquisition of vocational skills.

5.3.2 The effect of Tasks Assigned to Trainees during Industrial Attachment on Acquisition of Vocational Skills

The tasks assigned during industrial attachment were largely viewed as relevant, skill-enhancing and aligned with trainees' areas of study and career aspirations. The highest-rated items indicated that: tasks significantly contributed to professional skill development (Mean = 4.64), encouraged autonomy (Mean = 4.71), were meaningful and adequately challenging and helped trainees build self-confidence and perform independently.

Overall, the data reveals that tasks assigned were relevant, skill-enhancing and aligned with trainees' career goals. However, tasks that reinforced classroom-based theoretical knowledge had comparatively lower mean scores (3.58), suggesting a disconnection between TVET curriculum content and practical industry expectations. This highlights the need for better curriculum-practice integration as well as a closer collaboration between training institutions and industry partners to strengthen the linkage between theory and practice.

The results necessitated the rejection of the null hypothesis (H02), affirming that the relevance of assigned tasks exerts a statistically significant positive influence on the development of vocational skills. The null hypothesis for this objective was rejected, confirming that practical, relevant tasks enhance skill acquisition. Therefore, Objective 2 was achieved.

5.3.3 Effect of Supervision in Facilitating Acquisition of Vocational Skills Among TVET Trainees in Kenya

Supervision was found to be a critical factor in facilitating vocational skill acquisition. Trainees who received consistent, personalized and motivational supervision were more likely to report confidence in their skills and a sense of competence. High ratings in items such as: constructive feedback (Mean = 4.71), motivation to perform well (Mean = 4.33), encouragement to work independently (Mean = 4.71).

These results demonstrated that effective supervision positively shaped the learning experience and was largely effective in enhancing trainee learning and development.

However, the relatively lower ratings on items like supervisor accessibility, consistency in feedback and clarity of task instructions, highlight the need for standardized supervisory practices across industrial attachment placements.

The findings necessitated the rejection of the null hypothesis (H03). It can be inferred that supervision exerts a statistically significant positive influence on the development of vocational skills. With the null hypothesis rejected, the study confirmed that effective supervision during industrial attachment played a crucial role in facilitating skill development. Hence, Objective 3 was achieved.

5.3.4 Role of Moderating variables

The study sought to explore the moderating influence of trainee attitude and organizational culture on the acquisition of vocational skills during industrial attachment. The analysis revealed that these moderating variables significantly affect how well trainees adapt, learn and ultimately benefit from their attachment experiences.

i) Trainee Attitude

The findings underscore the importance of the individual trainee's disposition toward learning. High mean scores across several indicators reflect a generally positive trainee attitude: Trainees demonstrated high openness to feedback (Mean = 4.22), showed strong enthusiasm for learning (Mean = 4.70), exhibited positive responses to challenges (Mean = 4.53) and were widely motivated to acquire new skills (Mean = 4.70).

Such attitudes were associated with better task performance, greater receptiveness to supervision and more effective skill acquisition. These results suggest that trainee mind set is a key determinant of how much one gains from the industrial attachment experience.

ii) Organizational Culture

Organizational culture also played a critical role in either facilitating or constraining the learning process. Key aspects of culture that positively influenced skill acquisition included: clear role definition (Mean = 4.32), provision of necessary tools and resources (Mean = 4.32), emphasis on hands-on experience (Mean = 4.22) and open communication, which scored the highest (Mean = 4.70) and highlighting its importance in fostering a learning-friendly environment.

However, lower scores in areas such as teamwork and collaboration (Mean = 3.57) and working environment conduciveness (Mean = 3.57) suggest that not all organizations provided optimal support. This indicates that while organizational culture can be a powerful enabler, inconsistencies in practice still exist across different institutions.

The composite mean of 4.28 confirms that the combined influence of trainee attitude and organizational culture is significant, acting as a bridge between structured industrial attachment practices and actual vocational skill development.

Trainee attitude and organizational structure emerged as crucial moderating variables. The influence of trainee attitude (motivation, readiness to learn) and organizational

structure (clear roles, support systems) appears critical in optimizing the impact of attachment practices. Positive trainee attitudes likely enhanced engagement with induction, tasks and supervision, while well-structured organizations provided supportive environments for skill acquisition. Trainees who were motivated, proactive and open to learning reported greater benefits from the attachment experience. Similarly, organizations with clear structures, well-defined roles and committed mentors provided richer learning environments.

The findings underscore that both trainee attitude and organizational culture are key enablers of vocational skill development. While trainees generally exhibited strong personal motivation and openness to learning, the workplace context particularly teamwork and the learning environment showed some inconsistencies, suggesting a need for more standardized supportive practices across attachment sites.

5.4 Recommendations

Based on the findings of this study, the following recommendations are made:

1. S**trengthen induction process**

TVET institutions, in collaboration with industry partners, should establish standardized and continuous induction process to orient trainees on workplace safety, ethics and performance.

2. **Align tasks with training objectives**

Host organizations should assign trainees tasks that correspond to their courses of

specialization and competency levels to ensure meaningful skill transfer and practical experience.

3. **Enhance supervision**

Industrial supervisors should provide regular monitoring and feedback to support skill development.

3. **Policy and institutional collaboration**

NITA and TVETA should develop clear guidelines for implementing and monitoring industrial attachment practices to ensure quality and consistency across institutions.

5.5 Suggestions for Further Research

Building on this study, future research can explore;

1.A longitudinal study on the retention and application of skills post-attachment to assess how vocational skills acquired during industrial attachment are retained and applied by graduates in actual place of work.

2.To comprehensively assess the moderating role of trainee attitude, further research specifically targeting this aspect would be beneficial. This will provide deeper insights into how trainee's attitudes influence the effectiveness of industrial attachment practices on vocational skills acquisition.

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Appendix 1.: Questionnaire for Trainees

Introduction:

Dear participant,

I am a student conducting research on the Influence of Industrial Attachment Practices on Vocational Skills Acquisition among TVET Trainees in Kakamega County. The purpose of this questionnaire is to collect your views and opinions on the research problem. Kindly respond to it by filling in the blank spaces or ticking [√] where appropriate. All the information will be treated with utmost confidentiality during and after the study. Do not write your name anywhere in the questionnaire.

SECTION A. DEMOGRAPHIC DATA

1. Gender.Male[ ] Female[ ]
2. College Entry level. Form 4 [ ] Certificate [ ]
3. Age. Between 20 – 30 years [ ] Above 30 yrs [ ]
4. Place of attachment. Public [ ] Private [ ] NGO [ ]

SECTION B: INDUSTRIAL ATTACHMENT PRACTICES ON ACQUISITION OF VOCATIONAL SKILLS

Indicate by ticking if you; **1. Strongly Disagree(SD) 2. Disagree(D) 3. Not SureN) 4. Agree (A)5. Strongly Agree(SA)** to the statement concerning industrial attachment

INDICATOR	SD	D	NS	A	SA
Induction adequately prepared me for practical tasks I encountered during attachment.					
Induction gave guidance on my responsibilities					
I was oriented on workplaces mission, values and culture					
Induction effectively familiarized me with the workplace environment					
Induction provided clear expectations for my role during the attachment					
I received sufficient training and guidance during induction process to perform my tasks effectively					
Induction helped me understand the key skills required for my attachment					
Orientation sessions during induction process were relevant to attachment					
Induction effectively introduced me to the company's culture and values					
I felt adequately prepared to begin working independently after completing the induction process.					
induction process included opportunities to ask questions and receive feedback that enhanced my vocational skills					
Induction helped me understand how my role contributes to the overall goals of the organization					
Tasks assigned are directly related to my field of study.					
Complexity of tasks assigned during attachment improved my problem-solving skills.					
I received adequate opportunities to apply the skills learned in my academic studies during the industrial attachment tasks.					

Tasks given are challenging enough to enhance my professional competence					
Tasks assigned help me build confidence in performing job-related activities.					
I can apply theoretical knowledge learned to tasks assigned during attachment					
Tasks assigned contribute significantly to my overall skill development.					
Tasks assigned align well with my career					
I have acquired new vocational skills which are directly applicable to my future career goals.					
The level of supervision I received during my industrial attachment was adequate to help me develop my skills.					
The level of supervision I received during my attachment allowed me to confidently take on new and more complex tasks.					
My supervisor actively involved me in skill-building activities and provided opportunities for hands-on learning.					
My supervisor took a personalized approach to my development offering guidance tailored to my skill level.					
The constructive criticism I received from my supervisor helped me refine and improve my vocational skills during the attachment.					
Supervisor supports my professional development and growth					
Attachment has improved my vocational skills					
Supervisor provides guidance and direction in navigating challenges					
Supervisor is accessible					

SECTION C: ORGANIZATIONAL CULTURE AND TRAINEES ATTITUDE

Indicate by ticking if you; **1. Strongly Disagree (SD) 2. Disagree (D) 3. Not Sure (N) 4. Agree (A) 5. Strongly Agree (SA)** to the statement concerning industrial attachment

INDICATOR	SD	D	NS	A	SA
Clear definition of roles and responsibilities enhances ability to acquire vocational skills					
Teamwork and collaboration helps to acquire vocational skills more					
Organization's culture is flexible and supports development					
Necessary tools and resources are provided to facilitate skill development.					
Working environment is conducive for learning					
Organizational culture emphasized hands-on experience					
Open communication, made it easy to ask questions and learn.					
I was treated with respect and given equal opportunities to participate in activities.					
organization's reward system motivated me to perform better					
Organization's values and ethics inspired me to work harder					
Organization promoted a work-life balance					
Organization recognized and appreciated my efforts					
I was given room for creativity					

I was open and responsive to feedback					
I was enthusiastic to learn					
I took challenges positively					
I was committed and dedicated to assigned tasks					
I felt motivated to learn new skills					
I was open to learning from my supervisors and colleagues					
I dedicated sufficient time and effort to learn					
I maintained a positive attitude toward completing tasks on time					
I was flexible and adapted to new environments, tools and processes					
I regularly asked questions to understand the practical aspects					
I remained committed to learning					
I respected guidance provided by supervisors					

Thank you for taking time to fill this questionnaire.

SECTION D: ACQUISITION OF VOCATIONAL SKILLS

Indicate by ticking if you; **1. Strongly Disagree(SD) 2. Disagree(D) 3. Not Sure(N) 4. Agree (A)5. Strongly Agree(SA)** to the statement concerning industrial attachment

INDICATOR	SD	D	NS	A	SA
I generate innovative solutions to challenges					
I can analyze real-world problems					
I collaborate with others to brainstorm & implement problem-solving strategies					
I demonstrate resilience when facing obstacles					
Skills acquired have prepared me for future employment					
Have become more responsible and accountable for the tasks assigned to me					
Attachment experience helped me improve my ability to meet deadlines					
I developed a better understanding of workplace ethics and professionalism during my attachment					
I gained hands-on experience with tools, equipment and software relevant to my field					
Attachment experience improved understanding of industry standards and practices					
Have become more adaptable to new tasks and environments					
My communication skills improved as a result of interactions with colleagues and supervisors					
I developed better time management skills					

Thank you for taking time to fill this questionnaire.

Appendix 2: Interview Schedule for TVET Assessors

Introduction:

Dear participant,

I am a student conducting research on the Influence of Industrial Attachment Practices on Vocational Skills Acquisition among TVET Trainees in Kakamega County. The purpose of this questionnaire is to collect your views and opinions on the research problem. Kindly respond to it by filling in the blank spaces or ticking [√] where appropriate. All the information will be treated with utmost confidentiality during and after the study. Do not write your name anywhere in the questionnaire.

SECTION A. DEMOGRAPHIC DATA

1.Gender.Male[ ] Female [ ]
2.Age. Less than 30yrs [ ] Less than 40yrs [ ] Less than 50yrs[ ] less than 60yrs[ ]
3.Work Department. Applied Sciences [ ] Pure sciences [ ] Social science [ ] Languages [

4.Highest level of education. Diploma [ ] Bachelors' degree[ ] Masters' degree [ ] PhD degree [ ] 5.Experience as an assessor. Below 5 years [ ] Between 5 – 10 years [ ] Between 11 – 15 years [ ] Above 16 years [ ]

QUESTIONS

Effect of Induction Process on Acquisition of Vocational Skills

1. How do you assess the effectiveness of the induction process in preparing trainees for vocational skill acquisition?
2. What key components of the induction process do you believe contribute most to trainees' learning and adaptation?
3. Based on your assessments, how does the quality of induction vary across different industrial attachment sites?
4. What common gaps do you identify in the induction process that hinder vocational skill acquisition?
5. What recommendations would you make to improve the induction process for better vocational training outcomes?

Tasks Assigned to Trainees

1. How do you evaluate whether the tasks assigned to trainees align with their vocational training requirements?
2. In your experience, do trainees receive tasks that challenge them enough to develop their skills? Why or why not?
3. What are some examples of tasks you have found to be highly beneficial or detrimental to skill development?
4. Have you encountered cases where trainees were assigned irrelevant tasks? If so, how did that impact their learning?

5.What guidelines would you suggest to ensure that trainees receive industry-relevant tasks during their attachment?

Effect of Supervision on Vocational Skills Acquisition

1. How do you assess the role of workplace supervisors in facilitating trainees' vocational skill development?
2. What differences have you observed in skill acquisition between trainees with strong supervision and those with weak supervision?
3. Based on your evaluations, what challenges do supervisors face in effectively mentoring and assessing trainees?
4. How often do you interact with supervisors to ensure they are providing adequate guidance to trainees?

5. Suggest strategies for improving industrial attachment practices and aligning them more closely with the needs of TVET trainees and the industry.

Appendix 3: Interview Schedule for Supervisors

Introduction:

Dear participant,

I am a student conducting research on the Influence of Industrial Attachment Practices on Vocational Skills Acquisition among TVET Trainees in Kakamega County. The purpose of this questionnaire is to collect your views and opinions on the research problem. Kindly respond to it by filling in the blank spaces or ticking [√] where appropriate. All the information will be treated with utmost confidentiality during and after the study. Do not write your name anywhere in the questionnaire.

SECTION A. DEMOGRAPHIC DATA

1) Gender.Male[ ] Female [ ]
3)Work Department. Applied Sciences [ ] Pure sciences [ ] Social science [ ] Languages [ ]
4)Highest level of education. Certificate [ ] Diploma [ ] Bachelors' degree[ ] Masters' degree [ ] PhD degree [ ]
5) Experience as a supervisor. Below 5 years [ ] Between 5 – 10 years [ ]above 10 years [ ]

QUESTIONS

Effect of Induction Process on Acquisition of Vocational Skills

1.Can you describe the induction process your organization follows for TVET trainees?

2.How do you think the induction process helps trainees adapt to the workplace environment?

3.In what ways does the induction process impact a trainee's ability to acquire vocational skills?

4.What challenges do you face when conducting inductions for TVET trainees?

5.What improvements would you suggest to enhance the induction process for better vocational skills acquisition?

6.Can you describe the process your organization uses to induct trainees when they begin their industrial attachment?

7.How do you ensure that the induction process adequately prepares trainees for their roles and responsibilities?

8.What challenges have you encountered during the induction process, and how have you addressed them?

9.What key aspects of the work environment do you emphasize during the induction process (e.g., health and safety, organizational culture)?

10.Do you believe the induction process has a significant impact on trainees' acquisition of vocational skills? Why or why not?

Tasks Assigned to Trainees

1. How do you determine which tasks are assigned to TVET trainees?
2. Do you think the tasks given to trainees align with their vocational training? Why or why not?
3. How do you ensure that trainees are given progressively challenging tasks to enhance their skill development?
4. What challenges do you face in assigning relevant tasks to trainees?
5. What measures do you take to ensure trainees get hands-on experience in their area of specialization?
6. How often do you vary tasks you assign to trainees during their attachment?
7. In your opinion, are the tasks assigned to trainees aligned with their vocational training? Could you provide examples?
8. How do you balance assigning meaningful tasks with ensuring trainees remain engaged and productive during the attachment?
9. What feedback have trainees provided about the tasks they are given?
10. What recommendations would you make for ensuring that industrial attachment programs are more closely aligned with industry needs?

Effect of Supervision on Vocational Skills Acquisition

1.How do you monitor and assess the performance of TVET trainees during their attachment?

2.What role does supervision play in helping trainees acquire vocational skills?

3.How often do you provide feedback to trainees, and how does this impact their learning?

4.What recommendations would you make to improve the supervision process to enhance skill acquisition among trainees?

5.Can you walk me through the typical steps you take to supervise trainees during their industrial attachment?

6.How do you provide constructive feedback to trainees based on their performance and progress?

7.What supervision challenges do you face when guiding TVET trainees, and how do you overcome them?

8.In your view, how does the quality and frequency of supervision impact trainees' acquisition of vocational skills?

9.Which specific skills or attributes you believe trainees often lack upon starting their industrial attachment?

10.Suggest strategies for improving industrial attachment practices and aligning them more closely with the needs of TVET trainees and the industry.

Appendix 4: Introductory Letter

Damari Muthoka

Masinde Muliro University of Science & Technology
Department of Curriculum & Instructional Technology

P.O. BOX 190-50100

Kakamega

Date:

The principal,

----------TVET

P.O. BOX----------

Kakamega.

Dear Sir/Madam,

RE: REQUEST TO CONDUCT RESEARCH IN YOUR INSTITUTION

I am a post graduate student of Masinde Muliro University pursuing a Master's degree in curriculum and instruction. I intend to conduct research in your institution on "The Influence of Industrial Attachment Practices on the Acquisition of Vocational Skills among TVET Trainees in Kenya". The participants will be diploma and higher diploma trainees on industrial attachment and trainers involved in industrial attachment assessment. Information gathered from this research is for academic purposes only and will be kept confidentially. I kindly request for your cooperation to conduct this research.

Thank you.

Yours faithfully,

Damaris Muthoka

Appendix 5: Introduction and Consent

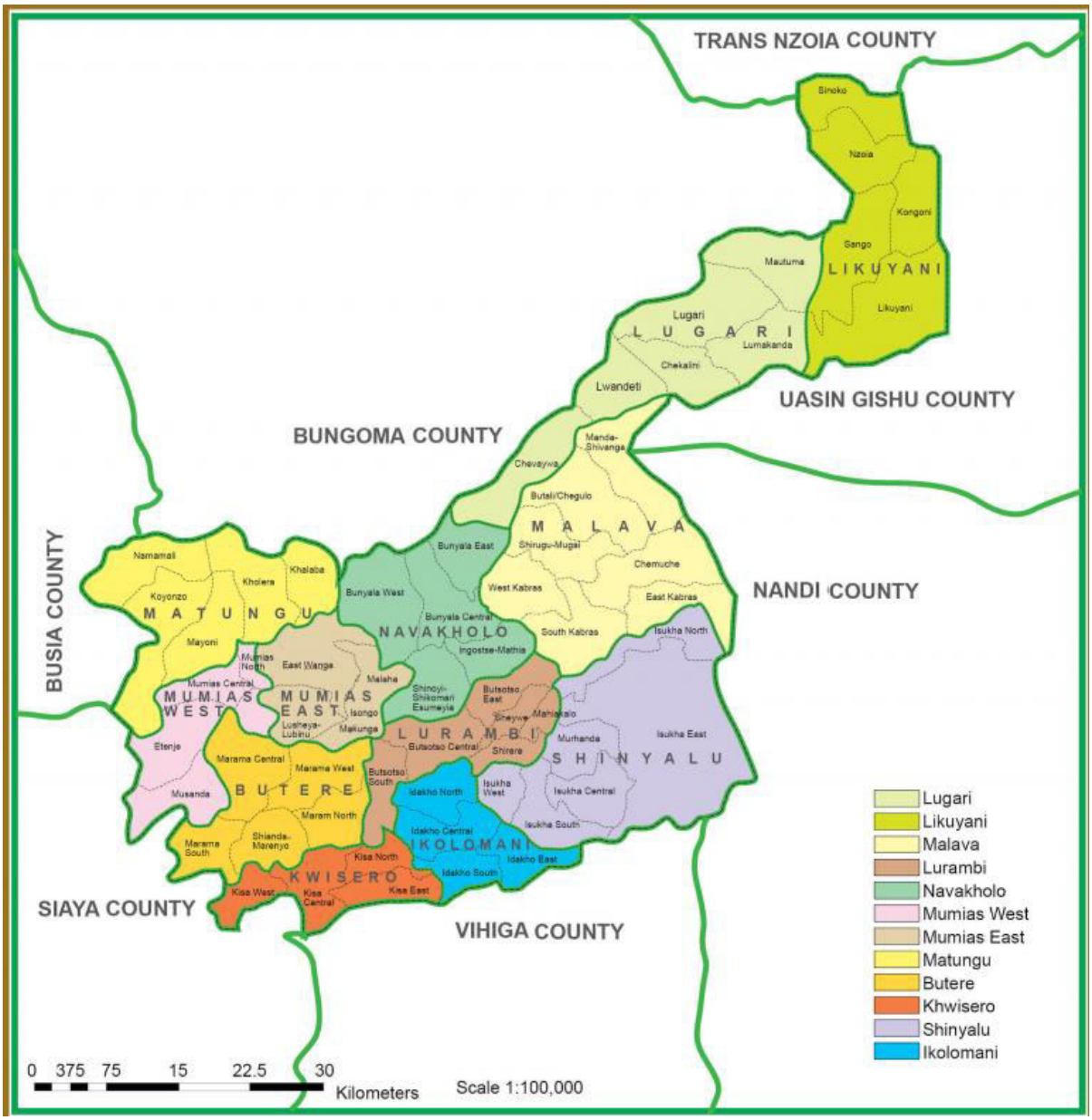
The purpose of the interview is to obtain information about **"The Influence of Industrial Attachment Practices on the Acquisition of Vocational Skills Among TVET Trainees in Kenya".** All the information will be treated with confidentiality.

INTRODUCTION

Good morning/afternoon/evening sir/madam my name is Damaris Muthoka. I am a postgraduate student at Masinde Muliro University of Science and Technology carrying out research on**,** The Influence of Industrial Attachment Practices on the Acquisition of Vocational Skills Among TVET Trainees in Kenya"**.** Your TVET/institution was randomly sampled to participate in this study and I visit you today to seek your consent to collect data concerning industrial attachment induction, tasks assigned to trainees during attachment and supervision.

This data is for academic purposes only. If you give consent for this interview, your responses will be held with utmost confidentiality and will only be available to members of the research team. If you accept to participate in this research, you will be doing so professionally and voluntarily and there will be no monetary returns. Any benefits of the research will largely be to contribute to research knowledge and evidence in order to enhance how industrial attachment facilitates the acquisition of vocational skills. You are free to ask questions as we proceed and at liberty not to respond to questions you do not feel comfortable with. This interview will take about 30 minutes.

Appendix 6: The Map of Kakamega County showing the twelve sub-counties



Appendix 7: University Proposal Approval Letter

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

19th August, 2024

Damaris Muthoka
ECI/G/03/2015
P.O. Box 190-50100,
KAKAMEGA.

Dear Ms. Muthoka

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your masters proposal entitled: ***"Influence of Industrial Attachment Practices on Acquisition of Practical Skills among TVET Trainees in Kenya"*** and appointed the following as supervisors:

1. Dr. Eric Wangila - MMUST
2. Dr. Karren Ongeti - MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Education Graduate Studies Committee and Chairman, Department of Curriculum and Instruction, Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

Prof. Stephen O. Odebero, PhD, FIEEP
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix 8: Research Permit from County Commissioner Kakamega County

REPUBLIC OF KENYA

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND NATIONAL ADMINISTRATION
STATE DEPARTMENT FOR INTERNAL SECURITY AND NATIONAL ADMINISTRATION

Telephone: 056 -31131

Email: cckakamega12@yahoo.com
When replying please quote

Ref. No. ED.12/1/VOL.VII/123

County Commissioner
Kakamega County
P O Box 43 - 50100
KAKAMEGA

Date: [illegible]

Ms Muthoka Kanini Damaris
Masinde Muliro University of Science and Technology
P.O Box 190- 50100
KAKAMEGA

RE: RESEARCH AUTHORIZATION

Following your authorization Vide License No. **NACOSTI/P/24/42284** dated 22nd November, 2024 by **NACOSTI** to undertake research on ***"Influence of Industrial Attachment Practices on Acquisition of Practical Skills among TVET Trainees in Kakamega County"*** for the period ending 22nd November, 2025. You are hereby informed that you have been authorized to carry out the research on the same in this county.

COUNTY COMMISSIONER
KAKAMEGA COUNTY

C.W. CHACHA
FOR: COUNTY COMMISSIONER
KAKAMEGA COUNTY

cc: All Deputy County Commissioners
KAKAMEGA COUNTY

Appendix 9: Research Permit from Kakamega County Director of Education

REPUBLIC OF KENYA

MINISTRY OF EDUCATION
STATE DEPARTMENT FOR BASIC EDUCATION

Telephone
Fax
E-mail wespropdad@yahoo.com
When replying please quote our Ref

County Director of Education
Kakamega County
P. O. BOX 137 - 50100
KAKAMEGA

REF: KAKA/C/GA/29/17/VOL.VI/384

7th [illegible]2025

MS. MUTHOKA KANINI DAMARIS
MASINDE MULIRO UNIVERSITY
OF SCIENCE & TECHNOLOGY

RE: RESEARCH AUTHORIZATION

Reference is made to a letter from NACOSTI Ref No: NACOSTI/P/24/42284 dated 22nd November, 2024 concerning subject matter.

This is to inform you that you have been authorized to carry out research on **'Influence of industrial attachment practices on Acquisition of Practical skills among TVET Trainees in, Kakamega County** the period ending 22nd November, 2025.

Please accord him/her any necessary assistance he/she may require.

HELLEN NYANG'AU
COUNTY DIRECTOR OF EDUCATION
KAKAMEGA COUNTY

Copy to:

Regional Director of Education
WEST ERN REGION

Appendix 10: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 646157

Date of Issue: 22/November/2024

RESEARCH LICENSE

This is to Certify that Ms. Mutholu Kanini Damaris of Masinde Muliro University of Science and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kakamega on the topic: INFLUENCE OF INDUSTRIAL ATTACHMENT PRACTICES ON AQUISITION OF PRACTICAL SKILLS AMONG TVET TRAINEES IN KENYA for the period ending: 22/November/2025.

License No: NACOSTI/P/24/42284

646157

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix 11: TVETA- Registered and Licensed Public TVC Institutions in Kakamega County

Bukura Agricultural College	TVC	Public
Bushiangala Technical Training Institute	TVC	Public
Butere TVC	TVC	Public
Masinde Muliro University of Science and Technology	TVC	Public
Mumias West Technical Training Institute C/O Sigalagala NP	TVC	Public
Rural Craft Training Centre – NYS Turbo	TVC	Public
Sabatia TVC C/O The Sigalagala National Polytechnic	TVC	Public
Shamberere National Polytechnic	NP	Public
Sigalagala National Polytechnic	NP	Public

Appendix 12: Publication

Muthoka, D., Wangila, E.& Ongeti, O.K(2025) Effect Of Industrial Induction Process On Acquisition Of Vocational Skills During Industrial Attachment Among TVET Trainees In Kakamega County, Kenya. *African Journal of Empirical Research*, Vol. 6 (Iss. 3) 2025, pp. 639 **https://doi.org/10.51867/ajernet.6.3.49**