EFFECT OF INCREASED ENROLMENT ON QUALITY OF TRAINING IN PUBLIC TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS IN UASIN GISHU COUNTY, KENYA

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DECLARATION

Declaration by the Candidate

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

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DEDICATION

I dedicate this work to my parents; David Ngetich and Fatumah Ngetich for their love, patience and financial support in the payment of university fees.

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ABSTRACT

Worldwide, countries both developed and developing, experience challenge in provision of quality education. In Kenya, Technical and Vocational Education and Training (TVET) enrolment has risen sharply following government incentives, raising concerns about the quality of training. The purpose of this study was to assess the effects of increased enrolment on the quality of training in selected public TVET institutions in Uasin Gishu County, Kenya. The study was guided by four objectives to : a) determine the influence of increased trainees enrollment on collaboration between industries and TVET institutions on quality training; b) To evaluate the influence of teaching strategies being utilized amid increased enrolment on the quality of training in public TVET institutions c) determine how utilization of existing infrastructure under condition of increased enrolment affects quality of training in selected public TVET institutions and to evaluate the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions. The human capital theory anchored the study. The research employed a mixed method design that was based on post-positivism paradigm. The study used a combination of sampling techniques including purposive and stratified sampling to select a study sample of 4 principals, 75 trainers and 1780 trainees for data collection. The study used interview guide for principals and questionnaire for trainers and trainees. Pilot study was conducted at The Kitale National Polytechnic to determine reliability and validity of the questionnaire. Test-retest technique was used to examine reliability. Data analysis for quantitative data was done by use of SPSS version 29 while for the qualitative data the researcher utilized thematic analysis. The researcher sought permission and followed the ethical considerations of research that is confidentiality, free from conflicts of interest, and fair to human subjects Response rates were 100% for principals,77.3% for trainers, and 82.6% for trainees. Findings indicated that a)62.1% of respondents acknowledged existing industry collaborations, though these were strained by increased enrolment and limited resources, b) 59.4% reported that large classes promoted teacher-centered methods, limiting hands-on skill acquisition)68.7% cited overcrowded workshops and laboratories as a major barrier to practical training. , d) 71.2% agreed that trainer workload increased reduced instructional quality and feedback timeliness d) Strategies such as class splitting (54.8%) and online learning (32.6%) were adopted but insufficient. The study concluded that increased enrolment has overstretched resources, weakened industry partnerships, overcrowded workshops and classrooms, and overburdened trainers, undermining training quality. It recommends strengthening industry linkages, increasing government capitation, expanding infrastructure, enhancing trainer capacity, and adopting sustainable delivery strategies to safeguard training quality amid rising enrolment.

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LIST OF ABBREVIATIONS

DCLT	Distributed Cognition Learning Theory
HR	Human Resource
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KNQA	Kenya National Qualification Authority
KUCCPS	Kenya Universities and Colleges Central Placement Service
NACOSTI	National Commission of Science, Technology and Innovation
OECD	Organization For economic Co-operation and Development
PPE	Personal protective equipment
SDGs	Sustainable Development Goals
SPSS	Statistical Package of Social Sciences
TVET	Technical and Vocational Education Training

CHAPTER ONE

INTRODUCTION

1.1 Introduction to the study

This chapter discusses the background of the study, problem statement, purpose of the study, objectives of the study, research questions, justification, scope, significance, limitation, theoretical framework, conceptual framework and operational definition of terms.

1.2 Background of the study

Over the years various governments around the world have placed importance on education. This has been enabled by the governments investing heavily in education through funding and offering logistical support to invigorate learning at various levels. While investment in education has been quite successful at expanding enrolment in education; for any level of efficiency increased enrolment requires increased resources if quality has to be maintained (Verspoor,2003). If the resources are not forthcoming, the increase in education quantity may come at the expense of quality.

Increasing the quality dimensions of education is of little value if the quality dimensions are ignored. Quality of learning is found in schools which are characterized by strong instructional leadership, clear and focused mission, safe and orderly schools, climate of high expectation of success, frequent monitoring of learner's progress, positive home school relations and enough opportunity to learn various new skills (Lezotte, 2010)

Kenya has not lagged in investing of education. In 2003, free primary education was started. This led to increased enrolment in primary school beyond what school could hold (Ng'ethe, 2004). This birthed a serious concern on the effect of free primary education program on the quality of education (Shimanda, 2010: Oketch and Somerset, 2010). As a result, some studies were conducted on the effect of increased enrolment on the quality of learning in public primary school (Mwirigi and Muthaa, 2015: Ndege, 2015). (Mwirigi and Muthaa (2015) concluded that the increase in pupil enrolment affected quality of learning as classes were overcrowded contributing to noise making, poor class control, teachers overwhelmed by work and sharing of textbook amongst the pupil. Ndege(2004) also confirmed this.

In 2008, vision 2030 blueprint was adopted in Kenya that contained a framework that detailed government organized intervention that would land Kenya into a middle level income country that would be more industrialized. The industrialization would need more artisans, craftsmen, technicians and technologists to help in enabling production in various trades, thus, TVET became a tool in enabling vision 2030. The government then started empowering TVET through streamlining placement in TVET by bringing on board Kenya Universities and Colleges Central Placement Service (KUCCPS) in 2017 .This allowed students in TVET institutions and National polytechnics to access loans from the government through Higher Education Loans Board (HELB) as well as subsidizing the applicable fee. In this middle level collges this led to significant increase in enrolment in TVET institutions across the country.

The following table 1 shows the trend in TVET institutions from 2015 to 2020.

Table 1.1: Enrolment in TVET institutions in Kenya.

Year	Number of Students
2020	451,200
2019	430,600
2018	359,900
2017	267,400
2016	195,900
2015	142,400

Source: TVETA, 2025

As this takes place, concerns are raised about if the increased enrolment would lead to poor quality of training in TVET institutions. Uasin Gishu County, located in Kenya's Rift Valley region, is a key economic hub, with industries in manufacturing, agro-processing, and construction driving demand for technical skills. The county hosts several public TVET institutions, including Eldoret National Polytechnic, Rift Valley Technical Training Institute, and Kipkabus Technical and Vocational College. County education reports Uasin Gishu County Directorate of Education, (2023) indicate that enrolment in these institutions has more than doubled over the past five years, rising from about 7,500 trainees in 2018 to over 17,800 in 2023. While this growth signals progress in expanding training opportunities, it has also placed significant pressure on existing infrastructure, equipment, and human resources.

Increased enrolment had led to overcrowded workshops and classrooms, higher trainer–trainee ratios, and strained industry institution collaboration due to the difficulty of accommodating larger numbers in industrial attachments. For example, the average trainer–trainee ratio in Uasin Gishu public TVET institutions is currently estimated at 1:40, compared to the recommended ratio of 1:20 for practical-based courses (MoE, 2022). This mismatch raised concerns about the quality of hands-on training and the readiness of TVET graduates to meet industry standards. Understanding how this enrolment expansion affects the quality of training in TVET institutions in Uasin Gishu County is therefore essential for informing policies, institutional practices, and future research.

1.3 Statement of the Problem

Kenya's promulgation of Vision 2030 on 10th June 2008 was a great milestone that led to a series of efforts aimed at moving the country to a middle-income economy that is highly industrialized. The Vision 2030 blueprint pointed out the crucial role of technical and vocational education and training in ensuring that sufficient workforce is developed to steer up the country towards achieving the vision. From then, the Kenyan government started empowering TVETs and encouraging school leavers to join TVETs for development of skills for the middle income economy.

In addition, the government has continued to provide incentives to those joining TVET institutions through such initiatives as embracing cost-sharing approach and even providing loans to needy trainees to help them to pursue training seamlessly. The aftermath of the incentives has been explosion in enrolment. . For instance, trainees' enrolment in the TVET institutions increased by 69.1 % to move from 267,400 in 2017 to 452,200 in 2020 (Faria, 2022). In Uasin Gishu County, enrolment in public TVET institutions has grown

from approximately 7,500 trainees in 2018 to over 17,800 in 2023 (Uasin Gishu County Directorate of Education, 2023). This rapid growth has not been matched by proportional increases in infrastructure, equipment, or human resources. Classrooms and workshops are overcrowded, industry attachment opportunities are limited, and trainers face heavy workloads. For example, the current trainer–trainee ratio averages 1:40, double the Ministry of Education's recommended 1:20 for practical-oriented courses (MoE, 2022). Similar trends have been observed nationally: Faria (2022) reported that enrolment in TVET institutions rose by 69.1% between 2017 and 2020 without a corresponding increase in institutional capacity. UNESCO (2016) emphasizes that overcrowding in vocational settings reduces opportunities for practical engagement and increases safety risks. Likewise, Oviawe (2020) found that in Nigerian polytechnics, overstretched workshops and outdated equipment compromised skill acquisition. These observations suggest that while increased enrolment expands access, it undermines the quality of training if not accompanied by adequate investment in infrastructure, staffing, and industry linkage opportunities These conditions risk undermining practical training, weakening industry–institution collaboration, and constraining the use of learner-centred pedagogies. While national-level studies have explored the relationship between enrolment of trainees and training quality in TVET institutions, limited research exists focusing specifically on Uasin Gishu County. Given the county's strategic role in technical skill development and the unique pressures faced by its public TVET institutions, there is a need for an evidence-based assessment of how increased enrolment is influencing training quality in this local context. This study addresses this gap by examining the effects of increased enrolment on these dimensions in public TVET institutions within Uasin Gishu County.

1.4 Purpose of the study

The purpose of this study was to assess the effects of increased enrolment on the quality of training in selected public TVET institutions in Uasin Gishu County, Kenya.

1.5 Objectives of the study

The main objective of the study was to investigate the effects of increased enrolment on trainees on the quality of training in TVET in Uasin Gishu County, Kenya.

The specific objectives of the study are;

i) To determine the influence of increased trainees' enrolment on collaboration between industries and TVET institutions on quality training in public TVET institutions in Uasin Gishu County, Kenya.

ii) To evaluate the influence of teaching strategies amid increased enrolment on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

iii) To determine how utilization of existing infrastructure under condition of increased enrolment affects quality of training in selected public TVET institutions in Uasin Gishu County, Kenya.

iv) To evaluate the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

1.6 Research Questions

From the objectives of the study, the following research questions were obtained.

i) How does increased trainees' enrolment influence collaboration between industries and TVET institutions on quality training in public TVET institutions in Uasin Gishu County, Kenya?
ii) What influence do the teaching strategies employ, amid increased enrolment, have on the quality of training delivered in public TVET institutions in Uasin Gishu County, Kenya?
iii) How does the utilization of existing infrastructure, under the condition of growing enrolment, impact the standard of training in public TVET institutions in Uasin Gishu County, Kenya?
iv) What is the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya?

1.7 Justification of the study

A person's life chances are strongly influenced by the quality of their education. Institutions aim at providing children with knowledge, skills and interpersonal competences required for their development, adult life and contributions to economy and society. Despite efforts by governments to increase access to elementary and tertiary education, significant disparities in educational outcomes continue to exist. A large number of students may fail to acquire sufficient competencies, jeopardizing their own future and the progress of their society. Kenya's education goals for their youth are ambitious: providing enriching learning opportunities to all from the early years and until at least the end of tertiary levels.

First, the study is justified by the critical role of industry collaborations in ensuring that graduates possess market-relevant skills; yet, rising student numbers are straining placement opportunities, threatening the alignment between training and labor market needs. Second, effective teaching strategies are central to skill acquisition in technical education, but the shift towards lecture-based delivery in overcrowded classes' risks producing graduates with limited practical competence. Third, the ability to deliver quality vocational training depends on adequate and well-maintained infrastructure, yet existing workshops, laboratories, and equipment are overstretched, outdated, and insufficient for growing cohorts. Fourth, trainer performance directly influences learning outcomes, but high student–trainer ratios, heavy workloads, and limited professional development opportunities undermine instructional quality. Anchoring the study's objectives in these concerns, the research seeks to: examine how increased enrolment influences industry collaborations in public TVET institutions; assess its effect on the teaching strategies adopted by trainers; determine its impact on the utilization and adequacy of existing infrastructure; and evaluate how it affects trainer performance. Addressing these objectives will provide evidence-based insights to guide policy reforms and institutional strategies aimed at sustaining and enhancing the quality of TVET in Kenya amid ongoing enrolment growth

In Kenya very few studies have been done on the effect of increased trainees' enrolment, especially in Uasin Gishu County. The need, thus, of checking on effect of surge in enrolment on quality of training is too significant to be ignored.

1.8 Scope of the Study

The study was carried out in TVET institutions within Uasin Gishu County, Kenya. The study was restricted to public TVET institutions under the National Government and County Government this is because TVET is a shared function between national and county governments in Kenya's devolved governance system. The results of the study will be generalized to the target population. The study specifically addresses how increased enrolment affected collaboration and industry, teaching strategy, utilization of resources and performance of the trainers.

1.9 Limitation of the study

The researcher had challenges in finding opportunity to administer the interview to the principals because of their tight schedule .However, the researcher managed to secure time for interview by booking appointments with the principals and ensuring that the principals were engaged for the interview within the limited time that was available. Information on quality was anticipated to be sensitive, therefore, the researcher had to take caution to avoid being given false information by the principals who would seek to protect the name of their institution(s). To create a friendly atmosphere, the researcher began each interview with informal conversation to establish rapport and trust. The researcher maintained a polite tone, used respectful language, and conducted interviews in comfortable, non-threatening environments such as the participants' offices. Participants were assured of confidentiality and anonymity, which encouraged openness. Active listening, empathy, and patience were exercised throughout, enabling the principals to share genuine insights without fear or reservation.

1.10 Significance of the study

The findings from the study are going be beneficial to the society in many ways. The Ministry of Education, State Department for Technical and Vocational Training may use this study's findings to establish policies that will guarantee proper enrolment in TVET institutions, promote proper capacity building of the trainees who will serve as active agents in helping the country to achieve its Vision 2030 agenda.

Moreover, the Curriculum Development Assessment and Certification Council (CDACC) in conjunction with the Sector Skills Advisory Committees (SSACs) may use the findings to develop occupational standards that can be taught in industries, in order to reduce overcrowding in TVET institutions. By highlighting the skills that the industries consider relevant, the Kenya Institute of Curriculum Development (KICD), Curriculum Development Assessment and Certification Council (CDACC) and Kenya National Qualification Authority (KNQA) together with the TVET institutions will be able to develop competence-based training.

This study's findings will guide policymakers in aligning TVET enrolment with institutional capacity, increasing funding for infrastructure and trainers, and strengthening national frameworks for industry–TVET collaboration. For practice, they encourage the adoption of innovative teaching methods, optimized use of facilities, and enhanced trainer professional development to maintain quality under high enrolment.

1.11 Theoretical Framework

This research was guided by the human capital theory of school effectiveness as adopted by Hargreaves (2001). The theory has four major components: expected results, influence,

intellectual input and social input, which as a result establishes the eminence of training offered and acquired at TVET institutions. The major ideas used from this theory are the expected results, influence and social input.

The Human Capital Theory, emphasizes that education and training are critical investments that enhance individuals' productivity, employability, and contribution to economic growth. In the context of this study, the theory provides a coherent lens for examining how increased enrolment impacts four interrelated variables industry collaborations, teaching strategies, infrastructure utilization, and trainer performance all of which directly influence the quality of human capital produced by TVET institutions.

Industry linkages operationalize the theory's intellectual input and social input components by enabling trainees to acquire job-relevant skills and workplace behaviors through industrial attachments, apprenticeships, and co-designed curricula. Such partnerships ensure that the "expected results" of training a competent, adaptable workforce are met by aligning institutional output with labour market needs. In conditions of increased enrolment, these collaborations become a strategic means of sustaining practical exposure and mitigating institutional resource limitations, thus preserving the value of the human capital developed.

The Human Capital Theory asserts that the quality of instructional processes directly determines the productivity of the graduate. Effective teaching strategies such as competency-based training, blended learning, and project-based instruction enhance knowledge acquisition and skills application, fulfilling the theories expected results component. Under high enrolment pressures, trainers may be forced into more teacher-

centered, less interactive methods, which can dilute the intellectual capital being developed. From the theory's perspective, investing in adaptive pedagogies and technology-supported delivery ensures that even in large classes, the human capital produced retains its competitiveness.

Infrastructure forms part of the capital inputs in the Human Capital Theory's framework, representing the physical means by which training is delivered. Well-maintained, adequately equipped workshops and laboratories facilitate hands-on learning that increases the productivity potential of trainees. When enrolment outpaces infrastructure capacity, overuse leads to diminished learning experiences, thereby lowering the quality of human capital. The theory justifies investments in infrastructure expansion, modernization, and innovative utilization models as essential for maximizing returns on educational investment.

Trainers are pivotal agents in transforming educational resources into productive human capital. Their expertise, motivation, and capacity for individualized instruction align with the influence and intellectual input components of the Human Capital Theory. High enrolment without proportional increases in trainer numbers can lead to burnout, reduced instructional quality, and weaker learning outcomes. According to the theory, enhancing trainer performance through professional development, workload management, and support systems is an investment that directly raises the economic value and productivity of the graduates produced.

By linking these four variables to the Human Capital Theory, this study positions them as critical determinants of the quality and value of human capital emerging from Kenya's

public TVET institutions. The theory not only guides the interpretation of findings but also underscores the economic and societal stakes of maintaining training quality amid rising enrolment.

1.12 Conceptual Framework

Conceptual frameworks lay out key factors, constructs, and variables in a given phenomenon and show the relationships between elements (Lillrank and Nilsson, 2021). The independent variable can be described as the antecedent to the dependent variable in a study (Pandey and Pandey, 2021). It attempts to indicate the real influence of the study.

The increased population of student affect the quality of TVET in a number of ways. The independent variables in this study were collaboration between the TVET institutions and the industries; teaching strategy; utilization of existing resources; performance of trainers. All these variables were considered in line with the condition of increased enrolment in the public TVET institutions. The dependent variable was quality of training. Intervening variables for this study included government policies and financial institutions. The intervening variables were assumed to either promote or deteriorate the quality of Technical and Vocational Education and Training. A systematic overview of various variables captured in this relationship were summarized diagrammatically in a conceptual model seen in has been Figure 1 below.

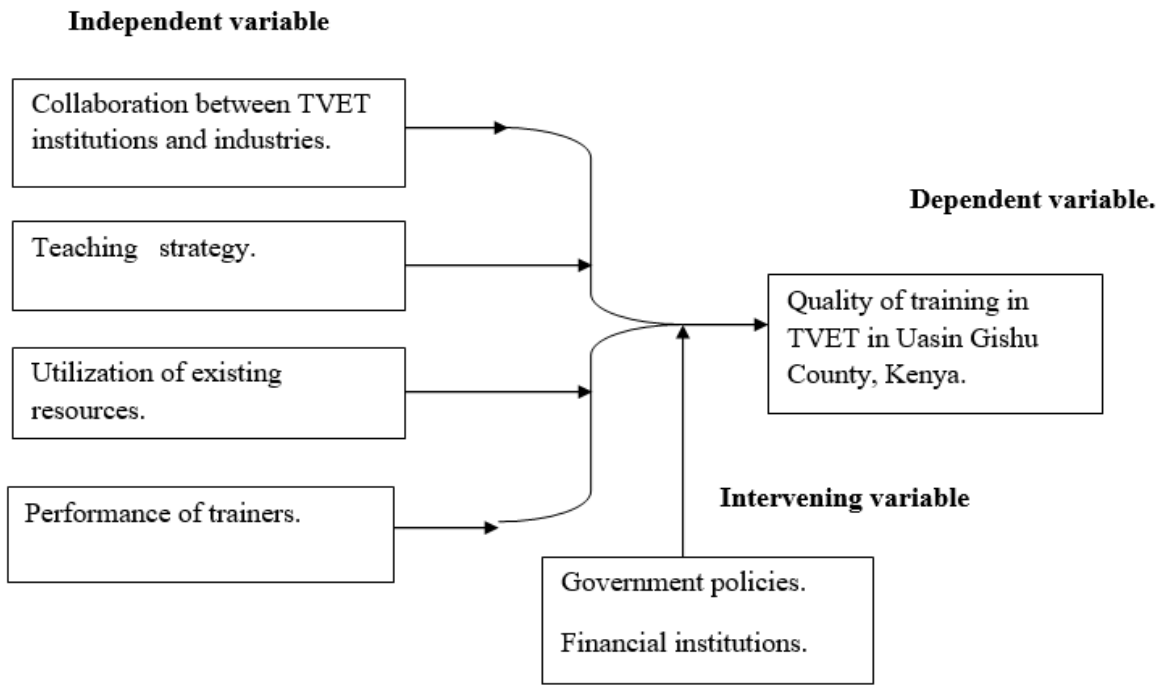

Figure 1: Conceptual Framework Model.

Source: Author (2025)

Collaboration between TVET institutions and industries is very essential in developing quality graduates. According to Yekonoamlak (2021), development of the workforce should be in light of the national economy. This, according to Coe (2018), ought to be done through tailoring programs towards developing trainees' full interest, aptitude, and capabilities that are cultivated through exposure to real work in the field. This implies that robust links and partnership with industries is essential. Partnerships between TVET institutions and industry are vital for aligning training content with labour market demands, securing industrial attachment opportunities, and fostering technology transfer. Increased enrolment can strain these linkages when industries cannot accommodate all trainees for

attachments or when trainers have limited time to engage with industry partners, potentially reducing the relevance and practical orientation of training.

Elsewhere, according to Tafase (2019), quality of training substantially depends on the approaches used to inculcate knowledge and skills in the learners. Trainers' ought to diversify teaching strategies to cater for the differentiated needs of the learners. Tafase (2019) further reiterates that quality of training largely depends on instructors' ability to choose and apply the best teaching strategies for imparting given skills. Effective vocational training requires learner-centered, competency-based approaches. However, in high-enrolment contexts, trainers may shift towards lecture-based delivery due to overcrowded classes and time constraints. This reduces opportunities for hands-on practice, small group work, and project-based learning, which are essential for skill mastery.

Any TVET program's quality is primarily determined by how well-organized its training facilities are (Gilli, 2016). The physical facilities that are sufficient, well-thought-out, and appropriately furnished; they function and are essentially similar to those found in the actual workplaces are instrumental in creating a conducive learning experience to the trainees for holistic empowerment (Ayalew, 2020). Given this, the availability of instructional materials determines both the quality of education and the degree of learning achievement. Training institutions' physical structure, computer lab layouts, special environments, classroom organization, furniture, and other elements all play a significant role in creating an environment that supports each student's achievement of the program's intended learning outcomes (Yekunoamlak, 2021; Ayalew, 2020). Quality training

depends on adequate workshops, laboratories, classrooms, and equipment. Increased enrolment can lead to overuse of facilities, outdated equipment, and limited access to practical sessions. This limits direct skill practice, reduces safety standards, and forces reliance on demonstrations rather than individual hands-on experience.

Lastly, trainers form the key element in ensuring achievement of the objectives of training out of all the inputs needed for TVET programs (Aschroft, 2018). An efficient relationship between instructors and trainees is fundamental to high-quality technical and vocational education and training (Tafase, 2019). Actually, only when there is an improvement in the caliber and applicability of instruction can there be a general improvement in vocational skills for citizenship and employability. Trainer performance is influenced by workload, class sizes, and opportunities for professional growth. Higher enrolment increases trainer-to-trainee ratios, making it difficult to offer timely feedback, assess competencies effectively, and keep up with technological advancements.

1.13 Operational Definition of Terms

1.13.1 Artisan: The level qualifies individuals who apply integrated technical and theoretical concepts in a broad range of concepts to undertake advanced skilled or paraprofessional work and as a pathway for further learning. The minimum entry requirement is a Kenya Certificate of Primary Education (KCPE) certificate or Kenya Certificate of Secondary Education (KCSE) with a minimum grade of D- (minus).

1.13.2 Craft : The qualifications relevant to this level is a pass at the artisan certificate level or an equivalent as illustrated by the national qualifications framework, and attaining a minimum D (plain) at the Kenya certificate of secondary education (KCSE) examination.

At this level the application of knowledge and skills to transfer theoretical concepts and technical skills is demonstrated in a range of situations.

1.13.3 Diploma: level at which the technician will demonstrate the application of knowledge and skills with depth of areas of specialization and an initiative in planning, designing and technical functions and to adapt a range of fundamental principles and complex technique.

1.13.4 Effects: Observable changes in collaboration, teaching strategies, infrastructure use, and trainer performance resulting from increased enrolment in TVET institutions.

1.13.5 Enrolment: The total number of trainees formally registered and actively attending training in a TVET institution within a given academic year.

1.13.6 Financial institutions: The organizations which offer capital to graduates and TVET institutions.

1.13.7 Government policies: A course of action adopted by the government.

1.13.8 Quality of training: The extent to which training delivered in TVET institutions is relevant to the job market, competency-based, industry-aligned, and supported by adequate infrastructure, effective pedagogy, and trainer competence.

1.13.9 Skill: The ability to perform a specific task competently as per the requirements of the level of competency acquired by the technician

1.14 Summary of Chapter One

TVET institutions have experienced a surge in enrolment in the recent past. It is not clear if this increase in enrolment has impacted the quality of training. This study was intended to assess the effect of increased trainee's enrolment on the quality of training in TVET institutions within Uasin Gishu County. The study specifically focused on how increased enrolment in TVET institutions in Uasin Gishu affect collaboration of TVET with industries, teaching strategy, utilization of infrastructure, and performance of trainers in delivering of quality training. Quality training is the most crucial pillar that can help to guarantee a successful future of learners hence the justification of the study. This study is significant as it informs on measures to be put in place to maintain quality of training in TVET. The study was guided by human capital theory.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature on the effects of increased enrolment on training quality in public TVET institutions, with a focus on four critical variables: collaboration between TVET institutions and industries, teaching strategies employed amid increased enrolment, utilization of existing infrastructure, and trainer performance. The review drew on global, regional, and Kenyan studies, identifies theoretical underpinnings, and highlights research gaps that justify this study.

Technical and Vocational Education and Training (TVET) systems play a pivotal role in equipping learners with the practical skills, knowledge, and attitudes required to participate effectively in the labour market. In both developed and developing economies, the capacity of TVET institutions to provide quality training is central to national productivity, innovation, and socio-economic transformation. Globally, the drive towards industrialization, digitalization, and sustainability has placed new demands on vocational training systems, making the quality of TVET graduates a priority concern (UNESCO-UNEVOC, 2022).

In Kenya, this reality is heightened by policy shifts such as the Vision 2030 development blueprint and the government's investment in expanding TVET access through fee subsidies, loan schemes via the Higher Education Loans Board (HELB), and centralized placement systems via KUCCPS. While these measures have led to a significant rise in enrolment from 142,400 trainees in 2015 to over 450,000 in 2020 the rapid expansion has

also introduced pressing questions regarding the maintenance of training quality (Faria, 2022).

2.2 General review literature

According to East Africa people (2022), student enrolment in TVET has increased fourfold. Reports undertaken to review the project performance revealed that in the 16 regional Flagship TVET institutes, had an enrolment of 30,776 students from 6,971 students. This is an increase exceeding their target of 20,000 students annually.

In morale of trainees, the perceived ideal roles and characteristics of women and girls influence how girls and boys are socialized in the home, community and school. Because girls and women in general are considered physically weaker and less capable than men, they are often overly protected and supervised to keep them from what is considered threatening to their safety such as; physical, sexual, mental and emotional safety Bird, (2011). Some parents are usually very reluctant to send their daughters to school because of the belief that education and school could be a corrupting influence. In some communities, there is the view that in co-educational schools, as most primary schools are, girls' morals would be corrupted because of the amount of time they spend with boys. There is also fear for the physical and sexual safety of girls in school due to cases of physical and sexual harassment and abuse from peers and teachers in the school. Where schools are situated long distances away, parents are usually worried about their daughters' safety while traveling to and from school (Hirsch, 2019).

In the industries, people who normally performed in their assigned work very well are traced to have been interested in that particular area even before selecting the trained course that is related to that area. With respect to that, the learner needs to be interested and also

understand the concepts that they are dealing with (Kroft et al., 2020). It was imperative to have noted that, indeed the students who are taking science subjects should be satisfied with their performance in the subject at lower levels of education. As a result of the better achievements in secondary schools, students are often expected to enroll more in the technical course at higher levels of institutions (Kinuthia, 2021; Achote, 2018). As yet, more female students don't appear to be performing well in the Science subjects leading to low enrolment in the technical related courses in the higher institution of learning. However, despite lower performance of female students in Sciences than male counterparts at high school level, there are still more than adequate number of females who can make up substantial proportion of the student's enrolment in Technical courses in the TVET institutions, yet this is not the case and the reasons remain largely speculative. Here, the challenge arises from negative attitude towards the Technical courses among female students due to the perception that past performance covered in the institutions appears to be complex for the female students to comprehend (Morris, 2022).

Moreover, Ashcroft (2001) contents that employment of large number of male tutors in technical courses at the technical institutions may suggest that females may not be performing well in the course and therefore the female students shy away from enrolling in these courses. The attitude of people keeps on changing, as they experience life and encounter other people, they become interested in things that they noticed in those people and they discard some of their old interests. Most people also develop more complicated understanding and thinking process, and they may even seek new interest and activities having hope in their minds to improve themselves and make life more exciting (Hewitt, 2019). Once the attitude of one keep changing so does the selection of courses of a person

change. More so, most of the students seeks to enrolled in those courses that meets their interest at that time, hence the selection of course that one may have wished to pursue when he/she was young is not what they eventually pursue.

According to Hewitt (2019), interest has become the most important factors in determinant and measures of course selection and most of the people would want to work in the areas they enjoy most so to be satisfied. According to Sears and Gordon (2002), an interest inventory has been developed to help identify interests and relates them to selection of courses by individuals. By measuring interests of successful and satisfied people in a certain field of work, researchers have developed scales that compare the interests of individuals to the interests of people who are certain about what they want to pursue. In this regard, it is hoped that these course selection scales are effective in predicting selection of course satisfaction.

Extrinsic and intrinsic rewards influence the morale of TVET trainers in Western Cape. It enhances job satisfaction and morale of trainers (Jeremiah and Martin, 2019). In a study done on the Impact of enrolment on the quality of learning in primary school in Imenti District, Kenya, showed that increased enrolment affects the quality of learning as classes were overcrowded contributing to noise making. Teachers were also unable to mark all the exercised given to the pupils (Muthaa, 2015).

Also, in another study done in Ghana on teachers experience with overcrowded classroom, indicated that trainers' experience with overcrowded classroom is stressful. The over enrolment in TVET institutions results in insufficient learning environments, poor safety and health concerns, limited contact between the trainers and the trainees, increased

disruptive behavior, increased emotional and mental challenges for the trainers, increased workload for trainers and insufficient time in the classroom. Also, high enrolment results in distressing experiences, low administrative support, low policy enforcement, insufficient trainer preparation and professional development, and lack of sufficient teaching material for learning (Osai et al., 2021).

Experiences from sub-Saharan Africa reflect this tension. Free primary education policies in Kenya (2003), Uganda (1997), and Tanzania (2001) resulted in unprecedented enrolment increases, but these gains were accompanied by overcrowded classrooms, overworked teachers, and reduced learner outcomes (Oketch and Somerset, 2010; Chimombo, 2005). Similar patterns have been recorded in higher education for instance, Nigerian public universities expanded rapidly in the 2000s but faced significant resource constraints, leading to strikes, outdated facilities, and declining academic standards (Olayiwola, 2010).

In the vocational sector, the challenge is more pronounced because quality training depends heavily on hands-on practice in well-equipped workshops, close supervision, and strong industry linkages. UNESCO (2016) notes that TVET quality is sensitive to student–trainer ratios, the currency of training equipment, and the extent of industry exposure during learning. Overcrowding in vocational settings can dilute practical sessions, leading to graduates with theoretical knowledge but inadequate technical competence.

Kenya's TVET expansion mirrors experiences in Ethiopia, where enrolment in technical colleges rose by 75% between 2010 and 2018, but infrastructure and trainer capacity lagged, resulting in training that was often misaligned with industry needs (MoE Ethiopia, 2019). In South Africa, the growth of Technical and Vocational Education and Training Colleges

after 2009 highlighted similar constraints, with high dropout rates linked to poor facilities, large class sizes, and inadequate student support services (DHET, 2016).

A related dimension is equity. Global literature suggests that rapid expansion can exacerbate gender imbalances, particularly in technical fields. Across Africa, female participation in TVET averages below 40% (AfDB, 2021), with societal norms, gender stereotypes, and safety concerns contributing to disparities. Addressing these imbalances is essential not only for inclusivity but also for harnessing the full potential of the labour force.

2.3 Specific review of Literature.

Literature in this section was reviewed under the following subheadings: collaboration between TVET institutions and the industries; teaching strategy; Utilization of existing infrastructure; performance of trainers.

2.3.1 Collaboration between TVET institutions and the industries

The collaboration between industries and TVET institutions effectively equips trainees with the practical skills needed to be sustained in the job market (Gasmelseed, 2021). Collaborations are essential for linking the gap between training and employment. The collaboration between technical institutions and the industry needs to pave the way for continuous training. The trainees need to be equipped with the skills and knowledge needed in the job market. The government needs to finance TVET institutions and industries adequately to foster collaboration.

For trainees to acquire employable skills , the TVET institutions need to adequately collaborate with the industries for trainees to gain employability skills (Mitiku et al., 2021).

In TVET institutions, this happens when trainees are on their industrial attachment. Industrial training exposes students to a reality experience which links them to the theoretical knowledge that institutions expose them to (Reiham, 2014).

Generally, TVET institutions need to strengthen their links with the industry since the primary consumer of TVET graduates and also the technology changes faster. For quality training to be achieved every student should go for industrial attachment.

Effective collaboration between TVET institutions and industry is widely acknowledged as a cornerstone of quality vocational training. ILO (2020) stresses that strong industry linkages ensure that curricula remain relevant, trainees gain real-world experience, and graduates possess skills that match labour market needs. Work-integrated learning (WIL) including apprenticeships, industrial attachments, and joint training programs is a primary mechanism for achieving this alignment.

Globally, several models have been successful. Germany's dual training system combines classroom-based instruction with structured apprenticeships, enabling students to spend up to 70% of their training time in industry settings (Deissinger, 2015). This model is credited with producing graduates who transition smoothly into the workforce, with employment rates exceeding 80% within six months of graduation. Similarly, Australia's Technical and Further Education (TAFE) colleges maintain structured partnerships with local industries through advisory boards and co-designed curricula, ensuring training meets evolving skill demands (Wheelahan and Moodie, 2017).

In the African context, South Africa's Sector Education and Training Authorities (SETAs) fund workplace-based learning and foster collaboration between employers and TVET

institutions. However, despite policy frameworks, implementation challenges such as limited employer participation and mismatched expectations persist (Akoojee, 2016). In Ethiopia, TVET-industry collaboration is enshrined in national policy, but studies show that partnerships are often limited in scope, and lack sustainable funding (MoE Ethiopia, 2019).

Kenya's TVET institutions have established some forms of collaboration with industry, especially in sectors such as manufacturing, construction, and hospitality. The TVET Authority encourages institutions to place students on industrial attachment, usually lasting between three and six months. However, with rising enrolment, the capacity of industries to absorb large numbers of trainees is limited. As a result, some trainees secure placements late or miss them altogether, which compromises skill acquisition.

The literature points to several barriers to effective collaboration under conditions of increased enrolment: Capacity constraints, Industries may lack sufficient positions for large trainee cohorts; Curriculum misalignment, Without regular updates, training content may not reflect technological advancements in industry; Funding limitations, Partnerships often rely on donor or government subsidies, which are not always consistent; Coordination challenges, Absence of strong institutional liaison offices can weaken placement arrangements.

In a study done on collaboration and linkages programs between TVET institutions and industry by Jahonga et al. (2016), showed that TVET institutes are yet to realize the partnership with industry in a more dynamic way and this explains why students take a lot

of time to find a place where they are attached for their industrial attachment. This study was supported by Markgate and Moila (2019), Mulati (2019) and Jahonga 2020.

There is a greater need to conduct this research so as to find out how Industrial Liaison Office (ILO) place trainees in industries for attachment considering the increase in enrolment.

2.3.2 Teaching strategy

There are different methods of teaching, these include; lecturing, discussion and dialogue, practical administration, group learning and investigation, online teaching among many other. The best teaching method by Aguado, (2009) is learning by doing practical in order to achieve quality training TVET students must be able to perform hands-on actions knowing about things is what matter and knowing how to do something is the only way to an entry level job (Norton, 2019).

Teaching strategies in TVET institutions must balance theoretical instruction with hands-on practical training. However, increased enrolment often shifts pedagogical approaches towards more lecture-based, teacher-centred methods, which are less effective for skill acquisition (Tafase, 2019). UNESCO-UNEVOC (2020) notes that optimal TVET delivery involves small group work, individual supervision, and project-based learning, all of which become difficult when class sizes exceed recommended limits.

Research on large-class pedagogy offers mixed findings. On one hand, Blatchford et al. (2011) argue that larger classes reduce the frequency of individualised feedback and increase classroom management challenges. On the other hand, some institutions have

successfully adapted through blended learning models, where online modules deliver theory while limited in-person sessions focus on practical skills (Means et al., 2013).

International examples demonstrate varied adaptations for example, ;Finland employs project-based learning even in larger classes, grouping students into collaborative teams with rotating leadership roles;Singapore uses high-fidelity simulations in engineering and health sciences to replicate industry environments, reducing dependence on limited workshop spaces; China has invested heavily in VR and AR-based training labs, allowing students to practice hazardous or complex tasks in virtual settings.

In Kenya, the rollout of Competency-Based Education and Training (CBET) in TVET institutions aimed to make training more practical and outcome-focused. However, CBET's success depends on manageable trainer workloads, access to relevant equipment, and consistent assessment, all of which are challenged by high enrolment. TVETA prescribes competency-based education and training (CBET) methodologies in TVET institutions. It is responsible for trainer qualification frameworks, curriculum delivery standards, and periodic quality audits to ensure learner-centered approaches are maintained. In cases of over-enrolment, TVETA has the authority to review and enforce compliance with recommended class sizes, teaching methods, and trainer–trainee ratios. This ensures that high student numbers do not force institutions to abandon CBET methods in favor of less effective, teacher-centered approaches

Literature identifies common barriers to maintaining effective teaching strategies under increased enrolment: Insufficient digital infrastructure to support e-learning, limited pedagogical training for trainers in blended or technology-enhanced methods, reduced

opportunities for continuous assessment and feedback, resource sharing that forces less time and access to practical session's exposure per trainee.

To sustain quality, studies recommend hybrid teaching models, modular timetables to stagger student use of facilities, and peer-assisted learning, where advanced students mentor juniors under trainer supervision (Fry et al., 2015). Teachers at village polytechnics and many TVET institutes are trained in the conventional mode of learning including lectures and group discussion. Research has shown that students enjoy lectures since it involves just listening. This is not a good method to involve technical students. There are limited hands-on instruction where students pick up knowledge by practice. This is as a result of insufficient teaching and learning materials. Because of this, the students lack obvious psychomotor abilities.

These abilities are required for creation of high-quality items generated by students in the field of work (Chege, 2013). According to commonwealth of learning, participating in TVET programs trainees not only gain knowledge but also develop practical and soft skills. Practical and soft skills components could make up as much as 80% of it. Face to face learning must be a part of the TVET program to hone these skills in classrooms or workshops.

There is limited research that demonstrates the optimum approach to be employed during teaching in order to accommodate the rising enrolment despite frontier studies showing the best method for teaching in TVET institutions.

2.3.3 Utilization of existing infrastructure with increased enrolment

Infrastructure including classrooms, workshops, laboratories, ICT facilities, and equipment forms the physical backbone of TVET training. UNESCO (2018) stresses that the quality of practical training is directly tied to the adequacy, accessibility, and modernity of such facilities. Increased enrolment puts significant pressure on infrastructure, leading to overcrowding, accelerated wear and tear, and compromised safety.

The concept of infrastructure elasticity (Verspoor, 2003) refers to the extent to which existing facilities can accommodate more students before quality declines. While some elasticity is possible through efficient timetabling and multi-shift usage, overextension eventually reduces learning effectiveness. For example, in Nigeria, overcrowded workshops in federal polytechnics resulted in reduced hands-on practice time and increased accident rates (Oviawe, 2020).

Comparative experiences show that strategic investments can mitigate infrastructure strain: South Korea uses public private partnership (PPPs) to co-develop training centres shared between institutions and industry; Ghana has mobilized alumni associations to fund facility upgrades, particularly in high-demand trades like welding and automotive technology; Rwanda has implemented mobile training units to deliver practical sessions in rural areas without permanent workshops.

Kenyan TVET institutions face challenges including outdated machinery, insufficient workshop space, and limited ICT access. With enrolment growth, scheduling conflicts for workshop use have intensified, sometimes forcing trainees to rely on demonstrations

instead of direct practice. The National Skills Development Policy (2019) calls for infrastructure expansion and modernization, but budget constraints have slowed implementation.

Innovative strategies in literature include modular and reconfigurable workshop designs, time-sharing arrangements with local industries, and integration of virtual labs to supplement physical facilities (Basuki *et al*., 2020). However, these require coordinated investment and skilled personnel to manage technology. The donations of tools, equipment, and other learning materials from alumni associations, foreign assistance, public-private partnership; skill development levy; currency transaction levy; air ticket solidarity levy; academic facility fee; ring-fenced TVET were some of the sources of funding TVET (Oviawe, 2020). Based on the study's findings, the government and other stakeholders should instantly adopt the funding strategies for the sustainable development of TVET programs.

In Kenya, TVET is regarded as a critical driver of Human Resource Development (Chepkoech et al., 2021). The Kenya Vision 2030 notes that to produce quality trainees, the government needs to: Comply with the Sustainable Development Goals (SDGs) and provide adequate workshop and laboratory facilities. There is a direct relationship between good academic performance and the provision of the workshop and the provision of workshop and laboratory facilities. This makes it essential for the TVET institutions to have modern Information Communication Technology (ICT) infrastructures, libraries, workshops, and laboratory facilities. Kenya Vision 2030 aims at developing the skills of trainees. To accelerate the attainment of the SDGs, the Kenyan government needs to develop infrastructure in technical institutions.

The workshop and laboratory facilities are crucial for they give a different experience to both trainees and trainers in training (Basuki et al., 2020). They turn graduates into skilled personnel who can propel development in all sectors. TVETA sets minimum infrastructure and equipment standards for program accreditation. It conducts inspections to confirm that facilities such as classrooms, laboratories, and workshops meet prescribed space and equipment requirements for the enrolled numbers but the workshop and laboratory facilities are not well managed in TVET institutions and industries. Therefore, adequate management of workshops and laboratories facilities is key to acquiring practical skills by trainees.

Study by Muyaka and Kitainge (2021), shows that existing infrastructure are insufficient to satisfy learners needs but little has been done on how the TVET institutions invest to ensure quality training is achieved despite the increased enrolment

2.3.4 Performance of trainers with increased enrolment.

Strategies from literature for maintaining trainer performance under pressure include increasing trainer numbers through contractual hiring, using blended delivery to reduce contact hour demands, and fostering communities of practice for peer learning among trainers (Darling-Hammond *et al*., 2017). Performance of trainers can be evaluated by putting together some of the rating checklist which include, classroom appearance, class management, delivery of instruction, presentation skills and student participation(elwood,2000).in order for a trainer to perform well he/she must be competent, effective and efficient

Trainer performance is a critical determinant of TVET quality. It encompasses instructional competence, classroom management, assessment practices, and the ability to adapt teaching to diverse learning needs (Idialu, 2013). Increased enrolment often leads to higher student–trainer ratios, reduced contact hours per student, and greater administrative workloads, all of which can negatively impact performance.

Research links high workloads to burnout, lower job satisfaction, and reduced teaching quality (Kyriacou, 2001; Skaalvik and Skaalvik, 2010). In vocational contexts, the impact is amplified because trainers must also prepare, maintain, and supervise practical training environments. UNESCO (2016) recommends a maximum ratio of 1:20 for practical classes, but in many Kenyan TVET institutions, ratios exceed 1:60 in some trades.

Internationally, various support mechanisms have been employed: Team teaching in Japan's polytechnics, where multiple trainers handle large groups, dividing theory and practical supervision, Teaching assistants in Canada's colleges, often senior students or industry volunteers, Digital grading tools in New Zealand, which streamline assessment in competency-based systems.

In Kenya, professional development opportunities for trainers are limited, particularly in emerging technologies and industry trends. The Technical Trainers College (TTC) provides initial training, but ongoing upskilling is inconsistent. Rising enrolment without proportional staffing increases leads to less individualised attention, slower feedback, and, in some cases, reliance on outdated training methods.

In a research study done by Auta and Egwu, (2020) supported Okafor's (2011) claim that TVET is concerned with producing graduates who can plan programs of courses and learning experiences that start with exploring career options, support basic academic and life skills, to enable achievement of high academic standards, and prepare students for industry-defined work. In addition, Hattie ,(2009) affirmed that lesson planning is the essential cornerstone upon which to construct effective education. Furthermore, the results support Seyi's, (2014) assertion that TVET teachers need to be knowledgeable about lesson design in order to present lessons in a TVET classroom, laboratory, or workshop in a way that is effective and engaging.

The results support Idialu's, (2013) assertion that a TVET trainer must interact with students in a style that is both understandable and entertaining to them otherwise their learning will be significantly hindered. Furthermore, the results support Akombi's, (2015) claim that tailoring the content and presentation style of a lesson to the audience is one of its most crucial components.

There are limited studies showing if increased enrolment in TVET has affected the performance of trainers in delivering of quality training.

2.4 Research gap

Despite the substantial body of literature on the quality of education and training, there is limited empirical evidence specifically addressing the effects of increased enrolment on training quality in public TVET institutions in Kenya. Most existing studies have focused on primary, secondary, or university education, leaving the vocational sector underexplored, particularly in relation to the combined pressures of rising student numbers

and limited resources. Although industry–TVET collaboration is widely recognized as vital for aligning training with labour market needs, there is little documentation on how such partnerships operate when enrolment surges strain both institutional and industry capacities. Similarly, while global research offers various pedagogical strategies for managing large classes, there is scant localized evidence on how Kenyan TVET trainers adapt teaching methods, integrate technology, and maintain hands-on skill development under high student–trainer ratios. Infrastructure challenges such as overcrowded workshops, outdated equipment, and safety risks are acknowledged in policy discussions, yet few studies assess the extent to which overuse affects training quality or explore innovative solutions applicable to the Kenyan context. Furthermore, the performance and motivation of trainers under heavy workloads have not been sufficiently examined, despite their central role in delivering quality training. Notably, existing available research addresses these issues in isolation, without integrating the four critical dimensions of collaboration, teaching strategies, infrastructure utilization, and trainer performance within a single framework. This lack of comprehensive, context-specific analysis underscores the need for the present study, which seeks to bridge these gaps by investigating how increased enrolment simultaneously affects these variables and, in turn, the overall quality of training in public TVET institutions in Uasin Gishu County, Kenya.

2.5 Summary of Chapter Two

On collaboration between TVET institutions and the industries, Gasmelseed (2021), looked at the extent to which materials inputs (facility, machinery, consumable materials) are supplied to TVET institutions and how students and teachers feel about students'

perceptions and aspirations for TVET. In a study done on collaboration and linkages programs between TVET institutions and industry by Jahonga et al (2016), showed that TVET institutes are yet to realize the partnership with industry in a more dynamic way and this explains why students take a lot of time to find a place where they are attached for their industrial attachment and this might have affected the quality of training.

There was need to conduct this research so as to find out if the findings on the impact of enrolment on the quality of education in primary study are the same as those in TVET institutions. Almost similar research done in Ghana showed that teachers are stressed with overcrowded classroom. The reviewed literature underscores that while increased enrolment in TVET institutions expands access and supports national development goals, it also introduces significant challenges to training quality

Despite these challenges, innovative practices from both developed and developing contexts offer potential pathways for sustaining quality amid expansion including blended learning, public–private partnerships, modular infrastructure use, and strengthened professional development systems.

A notable research gap is the limited empirical evidence on the extent to which increased enrolment affects these quality dimensions specifically in Kenyan public TVET institutions. This study addresses that gap by examining the interplay between enrolment growth and the four key variables outlined above in Uasin Gishu County.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focused on the strategies and procedures that was followed in conducting the research study. The chapter, thus, describes the philosophical paradigm, the research design, the study area of the study, the target population, the sampling technique, study variables, the research instruments, and administration of research instrument, reliability and validity of instruments, data analysis and ethical consideration.

3.2 Philosophical Paradigm of the study

A paradigm is an array of ideologies and practices that influence experts in a given field on what should be taught, how research analysis needs to be done, and how the outcomes should be made clear (Siponen and Klaavuniemi, 2021). The study was grounded on the post positivism paradigm since the enrolment came after the government opened doors for student to join TVET institutions through providing incentives for the same. This paradigm shaped the study by enabling the collection of numerical data on enrolment trends and quality indicators, as well as qualitative insights from trainers and principals on contextual challenges and opportunities.

3.3 Research Design

The study made use of mixed method research design. The approach of mixed method research blends quantitative and qualitative data to provide relevant information. This enabled data collection for this study to be conducted without manipulating the research variables. Thus, the description of the variables was made easier. This made it possible to

easily collect data from vast sample size and produce results representing the entire population. The mixed method research design allowed for use of standardized questions which were utilized to determine the reliability and validity of the items under study (Pandey and Pandey, 2021).

The researcher sought to obtain information that could describe the effects of increased enrolment on the Quality of training in Technical and Vocational Education and Training in Uasin Gishu County, Kenya. The study optimized the strengths of both quantitative and qualitative research methods. The quantitative method involved simple counts like frequency which were used to obtain the frequency and percentage of respondents' data.

In addition, the data collected from the 4 principals were analyzed thematically. Qualitative research aided the researcher construe and understand the complex certainty of the research and the ramifications of quantitative data. Due to these reasons, a mixed approach of research methods was used to carry out the study.

3.4 Study area

This study was conducted in TVET institutions in Uasin Gishu County, Kenya. The County is among the 47 counties in the Republic of Kenya and is situated in the previous Rift Valley Province. Eldoret city is the largest town in Uasin Gishu, hosting the County's commercial and administrative offices. The county is positioned on a plateau and enjoys a temperate and mild climate. It is about 330km to the North-West of Nairobi City, located in the Mid-West of Kenya’s Rift Valley. The County is cosmopolitan; however, the Nandi communities have the highest settlement. The County covers an area of 3,345.2 square kilometers. The main economic activities in the county include; horticulture, wheat

farming, sports tourism, maize farming, and dairy farming. The County has six constituencies which include: Moiben, Turbo, Kesses, Soy, Kapseret, and Ainabkoi.

According to TVETA (2023) Uasin Gishu County has 17 public TVET institutions. These composed of one (1) national polytechnic, six (6) are Technical and Vocational Colleges (TVCs) and ten (10) Vocational Training Centers (VTCs).This is shown in table 3.1 below.

Table 3.1: List of Public TVET Institutions in Uasin Gishu County, Kenya

S.NO	TVET INSTITUTION	TYPE	Trainers population	Trainees population	MANAGEMENT
1.	Eldoret polytechnic.	Public polytechnic	400	8,000	National Government
2.	Koshin Technical Training Institute	Public TVC	60	1500	National Government
3.	Rift Valley Technical Training Institute	Public TVC	215	6300	National Government
4.	Kipkabus Technical Training Institute	Public TVC	55	1500	National Government
5.	Moiben Technical and Vocational College	Public TVC	30	600	National Government
6.	Turbo Technical and Vocational College	Public TVC	20	1000	National Government
7.	Uasin Gishu Technical Training Institute	Public TVC	15	500	National Government
8.	Ainabkoi Vocational Training Centre	Public VTC	10	300	County Government
9.	Sergoek Vocational Training Centre	PublicVTC	15	500	County Government
10.	Mugundoi Vocational Training Centre	Public VTC	15	500	County Government
11.	Sesia Vocational Training Centre	Public VTC	17	500	County Government
12.	Kiwato Vocational Training Centre	Public VTC	7	250	County Government
13.	Eldoret Vocational Training Centre.	Public VTC	10	350	County Government
14.	Kenetic Vocational Training Center	Public VTC	10	300	County Government
15.	Kwenet Vocational Training Center	Public VTC	10	300	County Government
16.	Ngenyilel Vocational Training Center	Public VTC	10	300	County Government
17.	Ol'leinguge Vocational Training Centre	Public VTC	10	300	County Government

Source: TVETA (2023)

Of the 17 public TVET institutions above, the study focused on four institutions which were selected purposively. These included Eldoret National Polytechnic, Rift Valley Technical Training Institute, Koshin Technical Training Institute and Moiben Technical and Vocational College. Selection was based on their high trainee enrolment compared to other institutions in the county. The sampling proportion also aligns with Mugenda and Mugenda's (2009) guideline that a sample of between 10% and 30% of the target population is sufficient for generalization in studies. In this case, the four selected institutions represent 23.5% of all public TVET institutions in the county a proportion within the recommended range. Given their large share of the county's total TVET enrolment, these institutions provide a rich representation of the challenges and dynamics under study, making them an appropriate and sufficient sample from which findings can be generalized to the wider population of public TVET institutions in Uasin Gishu County.

3.5 Target Population

A population can be defined as all the aspects that qualify to be included in a study. On the other hand, the target population refers to the regular population being studied to which the research analysis results should be concluded (Pandey and Pandey, 2021). This study targeted the principals, trainers and trainees in the TVET institutions in Uasin Gishu County that have increased enrolment. Principals are part of management in the TVET institutions and therefore they were found resourceful in providing information on the effects of increased trainees' enrolment on the quality of TVET in Uasin Gishu County, Kenya. The trainers were presumed to be close to the trainees therefore feeling the impact of increased enrolment at classroom level. Also, the researcher believed in the fact that

since the trainees are directly affected by the trainers, they had adequate information on the effects of increased enrolment on the quality of training.

3.6 Sample size and Sampling Technique

3.6.1 Sample Size

The sample size needed to be premeditated at the designing stage in quantitative research. Quantitative researchers selected the most significant sample to represent the target population (Pandey and Pandey, 2021).There is always some sampling error in selecting a sample from a population, but the researcher tried to minimize such errors (Fellows and Liu, 2021).

In this study, the total target population comprised of 17800 trainees and 750 trainers across selected public TVET institutions in Uasin Gishu County. Since the population was large, a sample size representing approximately 10% was deemed appropriate. Consequently, 1,780 trainees and 75 trainers were selected to participate in the study. In addition, all four principals were included through census sampling because their number was small and manageable. This ensured that the sample was both statistically valid and practically representative of the study population.

Table 3.2 below shows how the samples were obtained from the target groups.

Table 1.2: Target Population and Sample Size

Institution	Population (Approximate)			Sample/Selected		
	Trainees	Trainers	Principals	Trainees	Trainers	Principals
1.Eldoret National polytechnic	8000	400	1	800	40	1
2.Rift Valley Technical Training Institute	6300	214	1	630	22	1
3.Kipkabus Technical Training Institute	2000	70	1	200	7	1
4.Koshin Technical Training Institute	1500	60	1	150	6	1
Total	**17800**	**750**	**4**	**1780**	**75**	**4**

Source: TVETA (2023)

3.6.2 Sampling Procedure

This study employed diverse approaches to obtain its representative population. Purposive sampling was used to select the four public institution (by reason of their increased enrolment). Having selected four public institutions purposively the study used stratified sampling to comprehensively cover the respondents in the four selected institutions. According to Winton and Sabol (2022), stratified sampling necessitates collection of unbiased samples, provides better coverage of the population since the researcher has control over the subgroups to ensure that they are well represented in the sampling**.** This

study comprised three strata which included the stratum of the principals, that of the trainers and then the one of the trainees. After the categorization of the three groups (strata), all the four principals from the selected TVET institutions were chosen to participate in the study. For the subgroup of principals, all of them from the selected institutions were involved in the research (no sampling was done for this subgroup). This is due to their small number that was manageable. For both the trainers and trainees, the researcher made use of simple random sampling. In this, 10% of the trainers and trainees from each of the selected institutions were chosen at random to participate in the study.

3.7 Data Collection Instruments

Researchers needed to understand what they will obtain and how they will obtain it during data collection. This study used interview guide (for principals), questionnaire (for trainees and trainers). Interview schedules were used to enable in-depth exploration of key research aspect. Structured questions were used to collect data on the effect of increased trainees' enrolment on the quality of training.

3.8 Validity and Reliability of the Research Instruments

3.8.1 Validity of the Research Instruments

A device is supposed to be successful in measuring what it is supposed to measure, such that the differences in the individual scores represent the fundamental differences in features being studied (Kothari, 2017). Validity is the capacity of the research instruments to give the same outcomes.Accordingly, validity is how a research instrument measures what it is presumed to measure and carries out what it is meant to perform. It is rare for a tool to be 100% valid.

For this study, validity of the research instruments was ensured by use of piloting and use of supervisors' expert judgement. The interview guide and questionnaires for the trainer and trainees were piloted at Kitale National Polytechnic.

To pilot the interview schedule, the researcher booked for an appointment with the principal of the Kitale National Polytechnic and then engaged the principal. The researcher introduced the principal to the study aim and then interviewed the principal using the interview guide. The principal was requested to rate the tool and make recommendations on the pertinent revisions. For the piloting of the questionnaires the researcher randomly selected 30 trainees and 10 trainers at Kitale National Polytechnic, requested for their consent and administered the questionnaire to them. After filling the questionnaire, the researcher collected the filled questionnaire forms and used them to check on the relevance of the responses to the study. The researcher then amended the questionnaire and the interview schedule to eliminate ambiguities. In addition to piloting the research instruments, the researcher sought expert opinion from supervisors and experienced researchers to enhance the validity of the research instruments.

3.8.2 Reliability of the Research Instruments

A research instrument is reliable when it can yield the same information when given out again under the same circumstances. However, it is challenging to realize the same data when dealing with humankind (Kothari, 2017).

In this study test - retest technique was used to ensure reliability of the research instrument. After administering the research instruments for the first time, the researcher issued the questionnaire to the previously selected trainees and trainers and principals to fill it after

two weeks from the date of first administration of the research instruments. Analysis of the two sets of responses was done to determine the Pearson correlation coefficient for the test-retest.

For this study, the researcher administered an interview guide (principal) and the questionnaires (trainer and trainees) to the pilot group (at the Kitale National Polytechnic) and then re-administered the research instruments after two weeks to the same respondents. The researcher, then, analyzed the consistency of the responses in the test and the retest and find out the Pearson's Product moment correlation coefficient for the research tools.

On comparing the scores for the questionnaire of trainees and trainers and interview schedule of principals, 0.845, and 0.95 correlation coefficients were obtained respectively. These values were above 0.70 which implied that the data collection instruments were highly reliable in collecting data on the effects of increased enrolment of trainees on quality of training in public technical and vocational education and training institutions in Uasin Gishu County, Kenya.

3.9 Data Collecting Procedure

Data collection procedure refers to steps that are followed while collecting data for a specific purpose (Smith-Hall et al., 2018). In this study, data was collected using a questionnaire and an interview schedule. The researcher, having obtained research permit from the National Commission of Science, Technology and Innovation (NACOSTI), engaged the trainees, trainers and principals in the four selected TVET institutions in Uasin Gishu County. The questionnaire was administered to the trainers and trainees while interviews were conducted to obtain pertinent information from the principals selected. For

the questionnaire, the respondents were given enough time to enable them to respond to the questionnaire accordingly and then the questionnaire was collected immediately after being filled by the respondents. The researcher also booked appointments with the principals to interview them on the influence of increased enrolment on quality of training in their institutions.

3.10 Data Processing and Analysis

Data collected in the study was both quantitative and qualitative. Quantitative analysis methods were employed in analyzing the quantitative data collected. The quantitative data from questionnaires was edited, coded, and entered into the Statistical Package for Social Sciences (SPSS) version 29 program that that helped to prepare, summarize, and analyze the raw data to produce descriptive statistics on the effects of increased trainees' enrolment on the quality of education in selected public TVET institutions in Uasin Gishu County. Collected data was analyzed and results presented using tables (frequency and percentages) and graphs. From the analyses, different cross-tabulations was drawn to reveal the effects of increased trainees' enrolment on the quality of training in TVET Uasin Gishu County, Kenya.

Lastly, qualitative data from the interview schedule was analyzed thematically. In this case, the researcher focused on the responses from the principals of TVET institutions and analyzed their perceptions, views and opinions critically, pointing out the weighty statements from the responses and establishing their meaning and their place in informing the research objectives.

3.11 Ethical Considerations

Conducting a research study is a crucial undertaking that demands obtaining required permission from associated authorities. Before conducting this study, therefore, the researcher sought clearance letter from University of Eldoret to allow pave way for the subsequent clearance by governing bodies (in charge of education and research). The recommendation was then used to obtain the research permit from the National Commission for Science, Technology, and Innovation (NACOSTI) before proceeding with the data collection. After release of the research permit from NACOSTI, the researcher proceeded to data collection in the four institutions in Uasin Gishu county that had increased enrolment .Moreover, the researcher sought permission from the selected TVET institutions before engaging with the respondents.

Research ethics were followed to obtain valid and reliable data when carrying out this study. Several ethical issues can arise during academic research, writing, and publishing. The researcher endeavored to ensure that the research is: confidential, free from conflicts of interest, and fair to human subjects.

3.12 Summary of Chapter Three

This study was based on post-positivism paradigm. The research was based in four selected TVET institutions in Uasin Gishu County**.**The target population was 4 principals (all from the four institutions), 750 trainers and 17,800 trainees from the 4 selected public TVET institutions in Uasin Gishu. In this study, the target population of trainees and trainers is huge and therefore a sample of 10% of the trainers and trainees was taken as sample size that gave simple size of 1,780 trainees and 75 trainers. No sampling was involved for the

principals from the four selected institutions. The study used interview guide for principals and questionnaire for trainers and trainees. Pilot study and expert judgement were used to determine validity of the two research instruments. Test-retest technique was used to examine reliability. The researcher sought permission and follow the ethical considerations of the research while collecting data. Analysis of quantitative data was done by use of SPSS software while qualitative data was analyzed by use of thematic analysis.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the data collected, analysis of the data, interpretation and discussion of the findings along the research objectives.

The study was guided by four objectives, namely

v) To determine the influence of increased trainees' enrolment on collaboration between industries and TVET institutions on quality training in public TVET institutions in Uasin Gishu County, Kenya.

vi) To evaluate the influence of teaching strategies amid increased enrolment on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

vii) To determine how utilization of existing infrastructure under condition of increased enrolment affects quality of training in selected public TVET institutions in Uasin Gishu County, Kenya.

viii) To evaluate the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

The chapter, therefore, covers demographic profile, response rate, findings of the study, interpretations and discussions of the findings, which are sequentially arranged as per the above objectives, as well as the summary of the chapter.

4.2 Response Rate

The study involved principals, trainers and trainees as respondents. The study interviewed four principals from the four selected institutions that represented 100% of the sample size. A total of 58 of the 75 trainers took part in the study, accounting for 77.3% of the sample

size. For trainees, the study involved 1,452 (82.6%) of the of the sample size which was 1780. According to Mugenda and Mugenda (2009), a response rate of 10 - 30 % of sample size is sufficient for descriptive studies.The study's actual participant count and the targeted samples was as displayed in Table 4.1 below.

Table 4.1: Description of the Response Rate

S/NO	Institution	Trainees		Trainers		Principals	
		Expected	Responded	Expected	Responded	Expected	Responded
1	Eldoret polytechnic	800	653	40	29	1	1
2	Rift Valley TTI	630	497	22	19	1	1
3	Kipkabus TTI	200	165	7	6	1	1
4	Koshin TTI	150	137	6	4	1	1
	TOTAL	1780	1452**(82.6%)**	75	58**(77.3%)**	4	4**(100%)**

Source: Author (2025)

All the institutions together had an overall trainee response rate of 82.6% .The overall participation rate for trainers was 77.3%, slightly lower than that of the trainees. Rift Valley TTI had highest response rate of 86.4% of trainers while Koshin TTI had the lowest response of 66.7%. These results conform to the findings of Roberts and Williams (2022) who indicated that support networks and engagement rates affect study participation rates based in TVET institutions that have better support and engagement lead to more students being active in participating in the study. Principals' participation rates was 100% in all institutions.

A high response rate, like the 82.6% for trainees and 77.3% for trainers, strengthened the validity and reliability of the findings. Since more participants provided data, the results

were more representative of the entire population of trainers and trainees, reducing response bias. The participation of principals further ensured that key institutional perspectives was also captured this is because all the four principals participated in the interview conducted.

Relatively, a high response rate ensured that variations across institutions are more accurately reflected in the data. This aligns with Roberts and Williams (2022), who emphasize the role of engagement and support networks in influencing participation.

4.3 Demographics of the Participants

The researcher in this study gathered demographic data from the respondents in order to appropriately categorize the participants. Incorporating respondents' demographic data is crucial for guaranteeing diversity and representativeness, improving the established ethical practices in research (University of Waterloo, 2023), comprehending contextual factors (Plos One, 2023), and lowering bias and enhancing validity (Brookings, 2023).

4.3.1Trainees' Demographic Data

The demographic data of the trainees that this study fetched included the gender, age bracket, year of study and the level of training.

4.3.1.1 Gender Distribution

According to gender the study involved more male trainees than female as shown in Table 4.2.

Table 4.2: Gender Distribution of the Trainees

Gender	Frequency	Percentage
Male	816	56.2
Female	636	43.8
Total	1452	100

Source: Author (2025)

According to the percentage distribution, female participants made up 43.8% of the sample while male made up 56.2%. This distribution is consistent with data made globally, which show that modest male dominance is typical in the majority of population distributions (World Bank, 2023).

This gender difference may impact various aspects of quality training. For instance, classroom population and engagement levels may vary if male and female trainees are more in different technical programs there will be a strain in resource allocation.

Additionally, disparities in access to training resources, mentorship, and industry opportunities could influence how well institutions support the growing enrolment of female trainees in traditionally male-dominated fields. Trainer-trainee interactions may also be affected, as trainers accustomed to predominantly male groups might need to adapt their teaching methods to ensure inclusivity and effectiveness of all students. Furthermore, while increased enrolment should ideally lead to better-trained graduates, gender-related disparities in job placement or internship opportunities could indicate that training quality is not benefiting all trainees equally. Although gender distribution of trainees alone may not drastically alter the study's findings, it is an important factor in assessing how institutions must adapt to ensure high-quality training for all students.

4.3.1.2Age distribution

The age distribution of the trainees was as shown in Table 4.3

Table 4.3: Age Distribution of the Trainees

Age bracket	Frequency	Percentage
15-19 years	253	17.44
20-24 years	1123	77.34
25-30 years	56	3.85
Above 30	20	1.37
Total	1452	100

Source: Author (2025)

The age group 20-24 was the largest in the study, with 77.3% of the sample. This indicates a significant concentration of participants in this age range.

This is due to the fact that there has recently emerged a common trend of presence of young learners in Kenya's tertiary institutions, a phenomenon that is supported by current policy changes and support structures (Honover, 2023). Only 3.9% and 1.4% of participants were 25-30 years and 30 and above years respectively. This is due to the fact that with the current policies of compulsory education in Kenya, majority of school-going population attend studies at young age, something that has caused a significant decrease in enrolment of adult learners in TVET institutions (Lombo, 2019).

The majority of trainees in TVET institutions are in the younger age, with 77.34% of them being between the ages of 20 and 24 and 17.44% being between the ages of 15 and 19, according to the age distribution of the trainees, which is displayed in Table 4.3. This indicates that more than 94% of the trainees are under 25, indicating that TVET institutions primarily serve young people, the majority of whom are probably just out of secondary school. Such a group usually needs more interactive teaching strategies, structured learning

environments, and closer supervision. The younger demographic of the student body at these institutions may result in additional demand on the training resources such as teachers, equipment, and classroom space as enrolment rises. This could have a detrimental effect on training quality since instructors might find it difficult to give each student the time and attention they need. Additionally, there is little opportunity for self-directed learning or peer mentorship from more seasoned individuals, which could otherwise lessen the burden of instruction, due to the low representation of mature learners just 3.85% of those aged 25 to 30 and 1.37% of those over 30. Thus, maintaining high-quality training in public TVET institutions is severely hampered by the young age distribution and rising enrolment, which calls for more funding for staff training, infrastructure, and age-appropriate teaching methods.

4.3.1.3 Year of study

The trainees' year of study was as shown in Table 4.4 below.

Table 4.4: Year of Study

Year of study	Frequency	Percentage
First year	523	36.02
Second year	492	33.88
Third year	437	30.1
Total	1452	100

Source: Author (2025)

In this study, distribution of trainees by year of study was even, with the values varying progressively (by about 3%) from first year to third year. This was because of the design

of the study that went for a representative sample across the years. Thus, efforts were made to ensure that this was achieved by working closely with the trainers teaching the various units in different years so that they could facilitate access to all the students across the years.

The even distribution of trainees by year of study ensures that the study captures a balanced perspective on the effect of increased enrolment on the quality of training in TVET institutions. Since the values varied progressively by about 3% from first year to third year, the study includes input from students at different stages of their training, providing a comprehensive view of how enrolment growth impacts training quality over time.

First-year trainees may experience challenges such as limited access to resources and difficulty adjusting to technical training, while third-year trainees, having spent more time in the system, can offer insights into how increased enrolment has affected aspects like practical training opportunities, trainer availability, and facility usage. Additionally, ensuring representation across all years helps identify any trends in the quality of training, such as whether institutions are able to sustain high standards as trainee's progress through their programs. If the study had been skewed toward a particular year, the findings might not have fully captured the long-term effects of increased enrolment. Therefore, the even distribution of trainees across study years enhances the reliability of the results and ensures that the conclusions drawn reflect the experiences of students throughout their entire training period.

4.3.1.4 Distribution of trainees by training levels.

The study involved diploma, crafts and artisan programs as shown in Table 4.5.

Table 4.5: Distribution by Level of Training

Course	Frequency	Percentage
Diploma	773	53.24
Craft	467	32.16
Artisan	212	14.6
Total	**1452**	**100**

Source: Author (2025)

The majority of the trainees (53.2%) were pursuing a diploma course. This agrees with findings that noted that in many countries, diploma programs are critical in providing the necessary skills for employment in various sectors, especially in technical and vocational education and training (TVET). (World Bank, 2023)). This is significant because the largest group in the sample, 53.2% of respondents, were trainees pursuing diploma courses. This is also due to the change in policy on skill development in Kenya where diploma programs have received policy support to bridge the skills gap and meet the demands of a growing job market (MoE, 2023). Other categories were craft level trainees (32.2 %.); Artsan level (14.6%)

The level of training whether diploma (53.2%), craft (32.2%), or artisan (14.6%) could have a significant effect on the study's outcomes regarding the impact of increased enrolment on the quality of training in TVET institutions. Since diploma programs have received policy support in Kenya to bridge the skills gap and meet job market demands, their larger representation in the study suggests that findings may be more reflective of

diploma-level training experiences. Diploma trainees typically engage in more advanced coursework, require more specialized resources, and often undertake industry attachments, meaning that increased enrolment at this level could put significant pressure on institutional resources such as trainers, equipment, and internship opportunities.

Similarly, craft and artisan trainees have different training needs, often requiring more hands-on practical instruction and workshop-based learning. A surge in enrolment at these levels without proportional increases in infrastructure, trainers, and materials could lead to overcrowding, reduced access to practical training, and overall lower training quality. Additionally, if institutions focus more on diploma programs due to policy emphasis, craft and artisan trainees may face challenges such as fewer resources or limited access to trainers. Therefore, the level of training is an important factor in determining how increased enrolment affects training quality, as each category of trainees may experience different challenges and benefits based on their specific learning requirements.

4.3.2 Trainers' Demographic data.

Trainers were asked to provide details about their age, gender, experience as a teacher, and the number of times they had assessed trainees on attachment.

4.3.2.1 Gender distribution

Gender distribution of trainers was as shown in table 4.6

Table 4.6: Gender Distribution of Trainers

Gender	Frequency	Percentage
Male	36	62.07
Female	22	37.93
Total	**58**	**100**

Source: Author (2025)

From the distribution above, male trainers were more compared to the female. The distribution of trainers from TVET institutions involved in the study indicates that 62.1% were male while 37.1% were female. This gender distribution conforms to global statistics that shows technical education, including trainers, is often male dominated (Industrial Liaison office, 2019).

According to Table 4.6, the gender distribution of trainers reveals that 37.9% are female and 62.1% are male. Male trainers make up the majority of the training staff in public TVET institutions, indicating a gender imbalance. This discrepancy may affect the study of how higher enrolment affects the measure of instruction provided by these institutions in a number of ways. The lack of female trainers may have an impact on the training environment's diversity and inclusivity, especially for female trainees who might find it helpful to have relatable mentors and role models within the institutions. Additionally, an unequal distribution of genders may also have an influence on workload distribution, especially if staffing is not proportionately increased alongside enrollment. Female trainers, being fewer, may experience a disproportionate workload if gender-sensitive

training, counseling, or mentoring roles fall primarily on them. Also, if certain technical fields are male dominated, the shortage of female trainers might limit efforts to promote gender equity in various vocational courses. Therefore, the existing gender distribution among trainers is an important factor to consider in the context of increased enrollment, as it may influence the effectiveness, responsiveness, and overall quality of training delivered in TVET institutions.

4.3.2.2 Age distribution of trainers

The age distribution of the trainers was as captured in Table 4.7

Table 4.7: Age Distribution of Trainers

Age Bracket (Years)	Frequency	Percentage
20-29	29	50
30-39	16	27.6
40-49	11	19
50 and above	2	3.4
Total	**58**	**100**

Source: Author (2025)

In this study, the largest proportion of trainers fell within the 20-29 age bracket, making up 50% of the total. This shows a relatively young workforce in these institutions. The age distribution of trainers, as shown in Table 4.7, indicates that a significant proportion of the training staff in public TVET institutions are relatively young. Half of the trainers (50%) fall within the 20–29 age bracket, while 27.6% are aged 30–39. This means that over 77% of the trainers are below the age of 40, suggesting that the workforce is predominantly youthful and possibly less experienced. While younger trainers may bring energy,

innovation, and familiarity with modern technologies into the classroom, they may also lack the extensive teaching experience and industry exposure necessary to manage large class sizes effectively, especially under conditions of increased enrollment. (Hammami, M. 2023).

This youth-dominant trainer profile could impact the quality of training, as increased enrollment requires not only technical knowledge but also strong classroom management skills, adaptability, and the ability to address diverse learner needs skills that are often honed through years of practice. The small percentage of trainers aged 40 and above (only 22.4%) may limit opportunities for mentorship and professional guidance for younger staff, potentially affecting overall instructional effectiveness. Additionally, institutions may face challenges in balancing the demands of expanded enrollment with the professional development needs of a largely young training workforce. Therefore, the youthful age distribution of trainers is a critical factor in understanding how increased enrollment may influence the quality of training in TVET institutions, highlighting the need for targeted support, training, and mentorship programs to enhance instructional capacity.

4.3.2.3Trainer's teaching experience

The Teaching experience of the trainers was as captured in Table 4.8

Table 4.8: Teaching experience

Years	Frequency	Percentage
0-4	12	20.7
5-9	27	46.6
10-14	13	22.4
15 years and above	6	10.3
Total	**58**	**100**

Source: Author (2025)

The largest group of trainers had 5-9 years of teaching experience, making up 46.6% of the total. This indicates that a significant portion of the workforce is relatively experienced but not yet at the senior level. The age distribution of trainers, as shown in Table 4.7, indicates that a significant proportion of the training staff in public TVET institutions are relatively young. Half of the trainers (50%) fall within the 20–29 age bracket, while 27.6% are aged 30–39. This means that over 77% of the trainers are below the age of 40, suggesting that the workforce is predominantly youthful and possibly less experienced. While younger trainers may bring energy, innovation, and familiarity with modern technologies into the classroom, they may also lack the extensive teaching experience and industry exposure necessary to manage large class sizes effectively, especially under conditions of increased enrollment.

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4.3.2.4 Industrial Assessment experience.

The Industrial attachment assessment experience was as captured in Table 4.9

Table 4.9: Industrial attachment assessment experience.

Assessment experience	Frequency	Percentage
Yes	33	56.90
No	25	43.10
Total	**58**	**100**

The data presented shows the distribution of trainers in TVET institutions based on their industrial attachment assessment experience. From the data collected, 33 trainers (56.90%) indicated that they had industrial attachment assessment experience .This indicated that

more than half of the trainers were involved in or had familiarity with the processes of evaluating trainees in industrial attachment. The data on trainers' assessment experience, as shown in table 4.9, indicates that 56.90% of the trainers have assessed students on industrial attachment, while 43.10% have not. This distribution has notable implications for the study of the effect of increased enrollment on the quality of training in TVET institutions. The fact that nearly half of the trainers have never assessed students on industrial attachment suggests a gap in practical exposure and continuity between classroom instruction and industry-based training. In the context of increased enrollment, this gap may widen, as more students require supervision and assessment during attachment, placing a higher demand on already limited human resources.

Trainers with no prior assessment experience may be less equipped to support learners in linking theoretical knowledge with practical industry skills, which is a critical component of competency-based education in TVET. This could compromise the quality of training outcomes, particularly when industrial attachment is intended to enhance students' employability and real-world readiness. Additionally, with more students enrolled, the capacity of the experienced trainers to assess all attachment students may be overstretched, further affecting the thoroughness and timeliness of evaluations. Therefore, the mixed levels of assessment experience among trainers could significantly impact the effectiveness of industrial attachment programs, and by extension, the overall quality of training amid rising student numbers. This highlights the need for capacity building and equitable distribution of assessment responsibilities among trainers to maintain training standards under increased enrollment conditions.

4.4 Influence of increased trainee's enrolment on Collaborations between TVET Institutions and Industries for quality training in public TVET institutions in Uasin Gishu County, Kenya.

In finding out facts concerning this first objective, trainees, trainers and principals were engaged. The trainers and trainees had to respond to two sets of questions in their questionnaire, the first part was made up of open-ended questions while the second part was made up of close-ended questions. The principals were engaged through interview and their responses captured. The responses of trainees and trainers and principals interview are presented as follows:

4.4.1 Forms of Collaborations between TVET Institutions and Industries

The table below shows frequencies of the distribution of the results obtained from trainees and trainers on the forms of collaboration between TVET institutions and industries.

Table 4.10 Trainers' and Trainees' Input on the Forms of Collaborations between TVET Institutions and Industries

S/NO	Form of Collaboration	Frequency			
		Trainees		Trainers	
1	Research and Innovation	270	18.6%	12	20.7%
2	Placement of Trainees for Attachment	478	32.9%	32	55.2%
3	Career Talks and Advisement	184	12.6%	9	15.5%
4	Workshops and Seminars	291	20.0%	16	27.6%
5	Educational Trips	229	15.7%	19	32.7%
	Total	1452		88	

Source: Author (2025)

From the feedback fetched from the above, trainees reported various forms of collaboration between their institutions and industries. These included research and innovation, placement of trainees for attachment, career talks and advisement, workshops and seminars, and educational trips**.**

The results in Table 4.10 present both trainers' and trainees' views on the forms of collaboration between TVET institutions and industries. The most common form of collaboration identified is placement of trainees for industrial attachment, with 32.9% of trainees and 55.2% of trainers acknowledging it. This indicates that industrial attachment is seen as the most prominent and impactful form of collaboration, likely because it provides students with hands-on experience and exposure to real working environments key elements in competency-based training. The second most cited form was workshops and seminars, with 20.0% of trainees and 27.6% of trainers indicating participation, giving an overall score of 20.3%. This reflects a recognition of the role of industry-led workshops in enhancing practical knowledge and keeping both learners and instructors updated on current trends and practices. Research and innovation comes next, though with lower acknowledgment 18.6% of trainees and 20.7% of trainers, resulting in 18.7% overall. While important, this suggests that engagement in collaborative research is still relatively limited and may need further development in most institutions. Educational trips and career talks/advisement received even lower responses, at 16.4% and 12.8% respectively. This suggests that while these activities are recognized, they are less frequent or perhaps not well integrated into the training programs.

In summary, both trainers and trainees viewed industrial attachment as the most significant form of collaboration with industries, while other forms such as career guidance and research partnerships appear to be underutilized. These findings suggest that while there is some collaboration between TVET institutions and industries, the partnerships are largely focused on attachment opportunities, with a need to broaden and deepen engagement in other areas like innovation, mentorship, and experiential learning. Enhancing these collaborations was essential for improving the relevance and quality of training, especially under conditions of increased enrollment.

4.4.2 Effectiveness of Collaborations between TVET Institutions and Industries

Table 4.11 below provides the summary of the results obtained on the effectiveness of collaborations between TVET institutions and industries.

Table 4.11. Trainers' and Trainees' Input on the Effectiveness of Collaborations between TVET Institutions and Industries

Question		**Frequency**			
		Trainees		**Trainers**	
Are the collaborations effective?	Yes	331	22.8%	14	24.1%
	No	957	65.9%	39	67.2%
	Don't Know	164	11.3%	5	8.6%
Total		1452		58	

Source: Author (2025)

Table 4.12. Trainers' and trainees' explanation as to why they considered the collaborations between TVET institutions and industries not effective

Only those trainers' and trainees' who said no to the question in table 4.11 briefly explained why they considered the collaborations not effective

Why are the collaborations not effective?	**frequency**			
	trainees		**trainers**	
Some industries deny requests for industrial attachment opportunities due to overwhelming numbers of students seeking attachment in the industries.	413	43.2%	21	53.8%
TVET institutions have shunned embracing the industries to enable effective partnership as they lack the capacity to strike a balance between provision of in-school training and field-based/ industry-based training	544	56.8%	18	46.2%

Source: Author (2025)

The data presented on the effectiveness of collaborations between TVET institutions and industries reveals a concerning perception among both trainees and trainers. A significant number 65.9% of trainees and 67.2% of trainers believe that the collaborations are not effective. Only 22.8% of trainees and 24.1% of trainers view these collaborations as effective, while a small proportion of both groups were uncertain. This indicates a general dissatisfaction with how partnerships between TVET institutions and industries are currently functioning, despite the recognized importance of such collaborations in enhancing practical training.

Further insight from Table 4.12 explains the reasons behind these negative perceptions. Among those who reported that the collaborations are ineffective, 56.8% of trainees and 46.2% of trainers stated that TVET institutions lack the capacity to effectively balance classroom training with industry-based experiences. This suggests structural or logistical limitations within institutions, possibly due to increased enrollment stretching resources, leading to missed opportunities for deeper industry engagement.

Additionally, 43.2% of trainees and 53.8% of trainers reported that industries deny requests for industrial attachment opportunities because of the overwhelming number of students. The mismatch between student numbers and industry capacity contributes directly to the perceived ineffectiveness of collaboration, especially in the area most valued by both groups industrial attachment.

In summary, although industrial attachment is the most recognized and utilized form of collaboration, its effectiveness is significantly hindered by the high student-to-industry ratio and the inability of institutions to manage both internal and external training demands. These findings emphasize the urgent need for expanded partnerships with a boader range of industries, better planning, and improved institutional capacity to coordinate effective collaborations that can withstand the pressure of increased enrollment.

4.4.3 Key Challenges Institutions Face while Engaging in Collaborations with Industries.

In the third question, trainers and trainees provided their input on the key challenges that TVET institutions encountered while collaborating with the industries to maintain quality training.

Table 4.13 below provides the summary of the results obtained on the Key Challenges Institutions Face while Engaging in Collaborations with Industries.

Table 4.13 Trainers' and Trainees' Views on the Key Challenges Institutions Face while Engaging in Collaborations with Industries

Key Challenges	Frequency			
	Trainees		Trainers	
Technological variations	270	18.6%	12	20.7%
Resource constraints	478	32.9%	32	55.2%
Limited time	184	12.6%	9	15.5%
Total	932		53	

Source: Author (2025)

The data on trainers' and trainees' views regarding key challenges faced by institutions when engaging in collaborations with industries reveals important insights that relate closely to the effects of increased enrolment on the quality of training. The most frequently cited challenge by both trainers (55.2%) and trainees (32.9%) is resource constraints. This suggests that institutions are struggling to provide adequate training materials, equipment, and human resources, a problem that is significantly worsened by increased student enrolment. As more students are admitted without a corresponding increase in resources, institutions become overstretched, resulting in reduced opportunities for effective industry collaboration and practical training, ultimately lowering the quality of training. Technological variations were also noted as a key challenge by 20.7% of trainers and 18.6% of trainees. With the growing number of students, institutions may find it difficult to upgrade or expand their technological infrastructure to meet modern industry standards. This technological mismatch limits the relevance and effectiveness of training, as students

are not exposed to the tools and systems used in the workplace. Additionally, limited time was cited by 15.5% of trainers and 12.6% of trainees. Increased enrolment places greater demands on trainers' time, leaving them with fewer opportunities to develop and maintain industry linkages or to engage students in in-depth, hands-on industrial experiences. Overall, the findings indicate that increased enrolment adversely affects the quality of training in TVET institutions by exacerbating existing challenges in industry collaboration, particularly through strained resources, outdated technology, and time constraints.

4.4.4 Strategies Being Employed by the Institutions to Ensure Sustainability of Collaborative Efforts

The trainers and trainees identified various strategies that were being employed by the institutions to ensure sustainability of collaborative efforts during increased enrollment to ensure quality training of trainees. The strategies identified were as follows:

Table 4.14 below provides the summary of the results obtained on Strategies Being Employed by the Institutions to Ensure Sustainability of Collaborative Efforts.

Table 4.14 Trainers' and Trainees' Views on Strategies Being Employed by the Institutions to Ensure Sustainability of Collaborative Efforts.

S/NO	Strategies being Employed	Frequency			
		Trainees		Trainers	
1	Establishment of a comprehensive framework for collaboration	270	18.6%	12	20.7%
2	Establishing clear goals and expectations for collaborations	478	32.9%	32	55.2%
3	Widening links with industries	184	12.6%	9	15.5%
4	Allocating more resources to support collaborations.	291	20.0%	16	27.6%

Source: Author (2025)

The data presented highlights the various strategies employed by TVET institutions to ensure the sustainability of collaborative efforts between trainers, trainees, and industries .The most frequently mentioned strategy among trainees (32.9%) and trainers (55.2%) was establishing clear goals and expectations for collaborations. This suggests that both groups acknowledge the necessity of defining specific objectives to ensure effective partnerships between institutions and industries. The second most commonly cited strategy by trainees (20.0%) and trainers (27.6%) was allocating more resources to support collaborations. This indicates that financial and material support plays a crucial role in sustaining partnerships. Adequate funding ensures that trainers can participate in industry assessments, institutions can facilitate industrial linkages, and trainees can access better training opportunities. The difference in response rates between trainees and trainers may be attributed to trainers having a more direct understanding of budget constraints and resource allocation challenges.

The establishment of a comprehensive framework for collaboration was recognized by 18.6% of trainees and 20.7% of trainers. This reflects the need for structured policies and guidelines that define roles, responsibilities, and expectations within collaborative arrangements.

Widening links with industries was identified by 12.6% of trainees and 15.5% of trainers. While this strategy received the least emphasis, it remains an essential factor in fostering industry-academic partnerships. Expanding industry connections can provide trainees with more diverse training opportunities, increase employment prospects, and enhance the relevance of TVET programs. The relatively lower prioritization of this strategy could be

due to existing industry linkages that institutions have already established, though continuous efforts in this area remain necessary.

The strategies identified such as establishing clear goals, allocating more resources, creating structured collaboration frameworks, and widening industry links play a critical role in enhancing the quality of training in TVET institutions. Clearly defined goals and expectations help ensure that collaborations between institutions and industries are focused, practical, and aligned with desired training outcomes, thus making learning more purposeful and job-relevant. Resource allocation directly impacts the ability of institutions to support industrial attachments, equip workshops, and enable trainers to stay updated with industry practices, thereby improving the delivery of hands-on, industry-aligned training. A comprehensive collaboration framework provides structure and accountability, ensuring that partnerships are consistent and sustainable, which supports continuity in quality improvement efforts. Expanding industry linkages, though less emphasized, is essential for increasing the scope and diversity of training opportunities, which enhances employability and keeps training programs relevant to current market demands. Together, these strategies create a stronger, more integrated training ecosystem that raises the quality and effectiveness of TVET education.

4.4.5 Role of Government Policy in Facilitating or Hindering Collaboration between TVET Institutions and Industries.

Table 4.15 provides the summary of the results obtained on the Role of Government Policy in Facilitating or Hindering Collaboration between TVET Institutions and Industries.

Table 4.15 Trainers' and Trainees' Views on the Role of Government Policy in Facilitating or Hindering Collaboration between TVET Institutions and Industries

S/NO	Role of Government Policy	Frequency			
		Trainees		Trainers	
1	Issuing machines to industries	213	14.7%	11	19.0%
2	Controlling the number of trainees	572	39.4%	45	77.6%
3	Providing incentives and establishing guidelines for collaboration	173	12.0%	5	8.6%
4	Funding of institution and industries.	282	19.4%	14	24.1%
5	Building infrastructure	143	9.8%	7	12.1%
6	Deploying trainers to up skill the trainees	132	9.1%	11	19.0%

Source: Author (2025)

The data on the role of government policy in facilitating or hindering collaboration between TVET institutions and industries reveals several factors that directly impact the quality of training. The most prominent issue identified by both trainers (77.6%) and trainees (39.4%) is the lack of control over the number of trainees. This significantly affects training quality because when enrolment exceeds the capacity of institutions, the available resources such as equipment, trainers, and physical space are overstretched. This overcrowding limits individualized attention, practical exposure, and effective engagement with industry, leading to superficial or compromised skill development.

Another major concern was insufficient funding for both institutions and industries, this was noted by 24.1% of trainers and 19.4% of trainees. Without adequate financial support, institutions cannot purchase modern equipment, retain and hire qualified staff, or support

trainees in accessing industry-based learning. Similarly, industries may lack motivation to collaborate if government support is inadequate. Poor funding therefore results in outdated training, limited practical exposure, and weak industry linkages, all of which diminish the relevance and quality of the training offered.

Issuing machines to industries and deploying trainers to up skill trainees were each acknowledged by 19.0% of trainers, highlighting the importance of equipping both industries and institutions with the tools and expertise necessary for effective training. When industries are well-equipped and institutions can send qualified trainers to up skill learners, the training becomes more aligned with current industry standards, thereby improving its quality. However, when such policies are not implemented or supported, trainees miss out on real-world, hands-on experience, reducing their readiness for the job market.

Furthermore, inadequate infrastructure (identified by 12.1% of trainers and 9.8% of trainees) and lack of incentives or clear guidelines for collaboration (8.6% and 12.0%, respectively) also hinder effective partnerships. Poor infrastructure means limited workshop space, outdated facilities, and overcrowded classrooms all of which restrict practical training opportunities. A lack of structured policies and incentives can lead to weak or inconsistent partnerships with industries, further reducing the quality and applicability of training.

4.4.6 Presence of Joint Efforts between Institutions and Industries to Help Accommodate Increased Enrolment

Table 4.16 below provides the summary of the results obtained on the Presence of Joint Efforts between Institutions and Industries to Help Accommodate Increased Enrolment.

Table 4.16 Trainers' and Trainees' Input on Presence of Joint Efforts between Institutions and Industries to Help Accommodate Increased Enrolment

Question	Response	Frequency			
		Trainees		Trainers	
Are there any joint efforts that exist between institutions and industries to help accommodate increased enrolment?	Yes	969	66.7%	35	60.3%
	No	365	25.1%	20	34.5%
	Don't Know	118	8.2%	3	5.2%

Source: Author (2025)

Table 4.17 Trainers' and Trainees' examples of the existing joint efforts between institutions and industries that are aimed at enabling the institutions to adapt to increased enrolment while maintaining training

Some of the existing joint efforts between institutions and industries	Frequency			
	trainees		**trainers**	
Making internship agreements and attachment agreements with industries.	723	74.6%	32	91.4%
Donating relevant equipment to workshops based in TVET institutions to eliminate skills mismatch	723	74.6%	32	91.4%
Linking trainees to companies for attachment	969	100%	35	100%

Source: Author (2025)

Only those trainers' and trainees' who admitted that there were joint efforts between institutions and industries to help accommodate increased enrolment gave some examples of the existing joint efforts between institutions and industries.

The findings suggest that a majority of both trainees (66.7%) and trainers (60.3%) acknowledge the existence of joint efforts between TVET institutions and industries to help accommodate increased enrolment. This indicates a positive collaboration aimed at enhancing skill acquisition and industrial exposure for trainees. However, a notable percentage of trainees (25.1%) and trainers (34.5%) believe that no such efforts exist,

highlighting potential inconsistencies in the implementation or awareness of these collaborations. Additionally, a small proportion of respondents (8.2% of trainees and 5.2% of trainers) were uncertain about the existence of joint efforts, suggesting a possible gap in communication regarding institutional-industry partnerships.

For those who acknowledged the presence of joint efforts, the key strategies identified include internship and attachment agreements with industries, donation of relevant equipment to TVET workshops to bridge skill gaps, and linking trainees to companies for attachment opportunities. These efforts reflect a shared commitment to improving practical training, ensuring that trainees gain industry-relevant skills. However, the significant proportion of respondents who do not recognize such collaborations implies that these efforts may not be uniformly applied across institutions or that more awareness and engagement are needed. Strengthening communication and expanding collaboration frameworks can further enhance the effectiveness of these joint efforts in managing increased enrolment and maintaining quality training in TVET institutions.

4.4.7 Strategies that were being used to measure and evaluate the outcomes of collaborative efforts with industries to ensure the quality of training of trainees was maintained.

Table 4.18 below provides the summary of the results obtained on strategies that were being used to measure and evaluate the outcomes of collaborative efforts with industries to ensure the quality of training of trainees was maintained.

Table 4.18 Trainers' and Trainees' Views on strategies that were being used to measure and evaluate the outcomes of collaborative efforts with industries to ensure the quality of training of trainees was maintained .

S/NO	Measuring and Evaluating Strategies being Employed	Frequency			
		Trainees		Trainers	
1	Assessment of trainees	270	18.6%	12	20.7%
		1182(Did not answer/irrelevant)	81.4%	46(Did not answer/irrelevant)	79.3%
2	Marking of Logbooks	478	32.9%	32	55.2%
		974 Did not answer/irrelevant	67.1%	26 (Did not answer/irrelevant)	%44.8

Source: Author (2025)

The findings reveal that marking of logbooks is the most widely used strategy for measuring and evaluating the outcomes of collaborative efforts between TVET institutions and industries, with 32.9% of trainees and 55.2% of trainers identifying it as a key approach. This suggests that logbooks play a crucial role in tracking trainees' progress, documenting their experiences, and providing structured feedback from both industry supervisors and trainers. The higher percentage of trainers endorsing this method indicates their reliance on logbooks as a formal assessment tool to monitor skill acquisition and industry exposure.

On the other hand, assessment of trainees was recognized by 18.6% of trainees and 20.7% of trainers, indicating that direct evaluation methods such as practical exams, competency-based assessments, or industry feedback are also used but to a lesser extent. This lower percentage may suggest challenges in implementing standardized trainee assessments across institutions, possibly due to limited resources or varying industry expectations.

Overall, the findings highlight that while formal documentation through logbooks is the predominant method for evaluating industrial training, there is room to enhance direct assessment strategies to ensure a more comprehensive evaluation of trainees' competencies. Strengthening both approaches can improve the effectiveness of TVET-industry collaborations, ensuring that trainees receive quality training aligned with industry standards.

The high number of trainees and trainers who did not respond to questions on measuring and evaluating strategies, may be attributed to several factors. These include lack of awareness, inadequate implementation or inconsistent application of these strategies within institutions, and possible ambiguity or complexity of the questions asked. Additionally, some respondents may have perceived the questions as irrelevant due to survey fatigue, time constraints, or reluctance to provide responses that could reflect negatively on their institutions.

Table 4.19: Trainees Views on Statements on Collaborations between TVET Institutions and Industries

S/NO	Statement	Frequency (in %)				
		SD	**D**	**N**	**A**	**SA**
1.	Our institution is partnering with many industries. This has enhanced the quality of training of trainees during these conditions of increased enrolment of trainees.	6.9	8.5	16.6	35.3	32.7
2.	With increased enrolment, the quality of training has been negatively affected because our institution is unable to place all trainees in industries for attachment.	10.4	27.2	4.6	44.2	13.6
3.	Increased enrolment has necessitated our institution to hire experts from various industries who visit to offer expertise in various trades to enhance quality of training.	8.8	20.7	38.9	28.7	2.9
4.	Despite increased enrolment, our institution ensures that all trainees on attachment are assessed at least two times within their attachment period and this has maintained quality of training	19.4	9.2	6.2	28.6	36.6
5.	Even with increased enrolment, our institution provides quality training of trainees by collaborating with more industries.	3.0	13.4	18.9	41.2	23.5
6.	Due to increased enrolment, our institution has lost its grip with industries. Therefore, trainees find attachment industries for themselves	0	6.4	14.6	33.3	45.7

Source: Author (2025)

Table 4.17 provides the summary of the results obtained on trainees' views on Statements on Collaborations between TVET Institutions and Industries. Many believe that institutional partnerships with industries have improved the quality of training, with 68%

agreeing that such collaborations have enhanced learning. However, a significant number of respondents (57.8%) feel that the quality of training has been negatively impacted due to the institution's inability to secure attachment placements for all trainees, highlighting a serious gap between enrolment growth and industrial capacity. Additionally, the response to hiring industry experts to support training efforts is mixed, with a high percentage remaining neutral, suggesting that such initiatives may not be consistently implemented across all trades or departments.

There is some positive feedback regarding assessment during industrial attachment, where 65.2% of trainees agree that their institution ensures they are evaluated at least twice during the attachment period. This reflects a commitment to maintaining training standards. Furthermore, 64.7% of trainees acknowledge that collaboration with more industries has been key in maintaining quality training despite increased enrolment. However, a major concern arises from the fact that 79% of trainees agree that, due to overcrowding and strained resources, institutions have lost strong ties with industries, forcing students to find attachment placements on their own. This not only points to institutional challenges in managing large trainee populations but also reveals potential inequalities in the quality of attachment experiences.

Table 4.20 Trainers' Views on Statements on Collaborations between TVET Institutions and Industries

S/NO Statement	Frequency (in %)				
	SD	**D**	**N**	**A**	**SA**
1. Our institution is partnering with many industries. This has enhanced the quality of training of trainees during these conditions of increased enrolment of trainees.	5.2	0	8.6	73.8	12.4
2. With increased enrolment, the quality of training has been negatively affected because our institution is unable to place all trainees in industries for attachment.	39.5	50.2	5.2	1.7	3.4
3. Increased enrolment has necessitated our institution to hire experts from various industries who visit to offer expertise in various trades to enhance quality of training.	0	0	29.4	45.1	25.5
4. Despite increased enrolment, our institution ensures that all trainees on attachment are assessed at least two times within their attachment period and this has maintained quality of training	0	0	9.9	22.4	67.7
5. Even with increased enrolment, our institution provides quality training of trainees by collaborating with more industries.	0	0	25.4	32.3	42.3
7. Due to increased enrolment, our institution has lost its grip with industries. Therefore, trainees find attachment industries for themselves	0	0	0	5.2	94.8

Source: Author (2025)

Table 4.20 provides the summary of the results obtained on trainers' views on Statements on Collaborations between TVET Institutions and Industries. A large majority of trainers (86.2%) agree that their institutions are actively partnering with industries, which has enhanced the quality of training despite the higher number of trainees. This indicates a generally positive view of institutional efforts to maintain standards through industry collaboration. Interestingly, most trainers (89.7%) disagree that increased enrolment has negatively affected training quality due to a lack of industrial placements.

Moreover, 70.6% of trainers agreed that increased enrolment has led their institutions to bring in industry experts to support training efforts, reinforcing the view that institutions are adapting to the pressure by seeking external expertise. When it comes to monitoring the training process, an overwhelming 90.1% of trainers affirm that trainees on attachment are assessed at least twice during their industrial period, which they believe has helped maintain training quality. This suggests that institutions have maintained structured oversight of attachments even with rising trainee numbers.

Large number of trainers (74.6%) believed that institutions continue to provide quality training by expanding collaborations with more industries. However, the most striking result is that 94.8% of trainers agree that, due to increased enrolment, institutions have lost their firm grip on coordinating attachments, forcing trainees to seek placements independently. This finding highlights a major concern: while trainers recognize and appreciate the efforts made to maintain training standards, they also acknowledge the overwhelming burden caused by rising enrolment, especially in managing industrial attachments.

4.4.8 Principals' response on influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions in Uasin Gishu County, Kenya.

Principals were interviewed on influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions in Uasin Gishu County, Kenya.

This objective had some questions in which the principals were asked, and responses given by the principal were summarized in the table below;

Table 4.21 Principals' response on influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions

Thematic Area	Sub-Themes	Response	Principals Involved	Effect on Quality of Training
Influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions in Uasin Gishu County, Kenya.	Collaboration among departments during industrial assessments	Trainers assess students across departments (teamwork)	A, B, C, D (100%)	Encourages standardized assessment but does not sufficiently address individualized training needs.
	Expanded industry partnerships	Institutions broadened partnerships due to increased enrolment	A, B, D (75%)	Improves access to hands-on learning opportunities and enhances industry alignment.
	Implementation of dual training	Introduction of dual training systems (practical training in industry)	A, B, D (75%)	Enhances practical skills acquisition and reduces pressure on institutional resources.
	Plans underway to initiate partnerships	Yet to implement industry collaborations	C(25%)	Delayed partnerships limit trainees' exposure to real-world experiences.
	Students seek attachment independently	Trainees are responsible for securing industrial placements	A, B (50%)	May result in uneven attachment experiences and missed opportunities for practical learning.

Partial institutional support in finding placements	Institutions assist only a few trainees	C, D (50%)	Inconsistent placement support reduces equal access to relevant industry exposure.
Occasional expert mentorship	Institutions bring in professionals occasionally	B, C, D (75%)	Provides real-world knowledge but limited frequency weakens consistent industry engagement.
No expert involvement	Trainees depend only on attachments for industry experience	A (25%)	Reduces training relevance by limiting professional mentorship within the institution.
One-time assessment during attachment	All students assessed only once	A, B, C, D (100%)	Inadequate for tracking progress and ensuring training outcomes amid increased enrolment.
Limited assessment due to resource constraints	Lack of assessors funding affects evaluation frequency	A, B, C, D (100%)	Weakens feedback loops and compromises ongoing performance improvement.
Insufficient staff, funding, and logistical support	Institutions lack capacity to support increased trainees enrollment.	All (100%)	Undermines institutional ability to maintain quality and consistency in training delivery.

Table 4.21 highlights how increased trainees' enrolment on collaboration between industries and TVET institutions has affected quality training in public TVET institutions in Uasin Gishu County, Kenya. While all principals acknowledged collaboration among departments particularly during industrial assessments this strategy promotes teamwork and standardization but does not sufficiently support individualized learning, which is crucial for competency-based training. Efforts such as expanding industry partnerships and implementing dual training programs (reported by 75% of the principals) reflect an approach to improving practical skills acquisition and aligning training with industry demands. These initiatives enhance the quality of training by providing learners with relevant, hands-on experience, which complements theoretical instruction. However, the absence of such partnerships in some institutions (e.g., Principal C) shows inconsistency in the implementation of best practices, thereby limiting equal exposure to industry-based training.

Support for securing industrial attachments also varies significantly. In cases where students are required to find placements independently (A, B), there is a risk of inequity in access and exposure, potentially resulting in inconsistent training outcomes. Limited institutional support (C, D) further weakens the standardization of learning experiences and undermines the goal of equitable quality training. The engagement of industry experts to mentor trainees is inconsistent, with only some institutions occasionally involving professionals. While this adds value through real-world insights, the limited frequency of such mentorship means that not all trainees benefit equally. Institutions that rely solely on attachments without expert involvement risk offering outdated or incomplete industry perspectives, which may compromise the relevance and effectiveness of the training.

Assessment practices during industrial attachments are also a major concern. All four principals reported that trainees are assessed only once due to resource constraints. This minimal evaluation is inadequate for tracking progress or reinforcing learning, especially with increased student numbers. Such limited assessment weakens continuous performance feedback, which is essential for maintaining high standards in vocational education.

Finally, all principals confirmed the presence of systemic challenges, including understaffing, insufficient funding, and logistical difficulties. These limitations directly affect the institutions' capacity to maintain consistent quality training, particularly under the strain of increased enrolment. Without adequate resources, institutions struggle to sustain industry collaborations, implement robust assessment systems, or support trainers and trainees effectively.

4.4.9 Discussion of the findings

The TVET institutions are trying to maintain robust links with industries. This conforms to the study by the World Bank that highlights that effective partnerships between TVET institutions and industries are critical for improving training quality and aligning skills with labor market needs. This is particularly important as many institutions face a skills mismatch challenge, emphasizing the need for stronger collaborations to meet evolving market demands (World Bank, 2023). The UNESCO-UNEVOC report, on the other hand, emphasizes that despite the potential for quality improvement through industry collaboration, many institutions struggle with increased enrolment. This can lead to challenges such as insufficient attachment opportunities and variability in training quality (UNESCO-UNEVOC, 2023). Lastly, a study focused on TVET institutions in Kenya found

that collaboration with industries often falls short, leading to inadequate practical training for students. This aligns with broader global trends where institutions need to bolster their links with industries to ensure students acquire relevant skills (IOSR Journals, 2023).

In summary, both trainees and trainers agree that partnerships with industries and structured assessment during attachment have helped maintain training quality. They also acknowledge the challenge of institutions losing control over placement coordination due to increased enrolment. However, there is disagreement on whether increased enrolment has negatively impacted training quality overall and on the visibility of expert involvement from industries. These differences point to a need for better communication, more equitable attachment placements, and stronger institutional capacity to manage growth without compromising quality.

The findings reveal that while industry collaboration remains a cornerstone of Kenya's TVET training framework, its implementation is highly skewed toward industrial attachments, with limited diversification into other engagement avenues such as innovation partnerships, curriculum co-design, and sustained mentorship. This overreliance on attachments has made the system particularly vulnerable to rising trainee numbers, as industry absorption capacity is finite and often overstretched. Similar concerns are noted by the World Bank (2023) and UNESCO-UNEVOC (2023), which highlight that while industry partnerships can enhance training relevance, they are often undermined by insufficient placement opportunities and variability in training quality.

The perceived ineffectiveness of collaborations—reported by over two-thirds of respondents reflects a structural mismatch between policy ambition and operational

capacity. Institutions face chronic resource shortages, technological gaps, and trainer workload pressures, while industries struggle to host large trainee cohorts. These findings align with Mureithi (2019) and Wanjala and Too (2020), who argue that unregulated enrolment growth without proportional investment in infrastructure, human capital, and industry linkages inevitably erodes training quality.

Government policy emerges as both an enabler and a constraint. Policies regulating enrolment, funding infrastructure, and incentivizing industry partnerships are crucial, yet gaps in implementation and uneven application have led to mixed results across institutions.

Overall, the evidence underscores the need for a paradigm shift in TVET–industry relations from transactional, short-term engagements toward integrated, long-term partnerships that can adapt to rising demand while safeguarding quality. Without such strategic realignment, the sustainability of Kenya's TVET system will remain at risk under the pressures of expanding access mandates.

As a researcher, I interpret this to mean that while partnerships exist, they are not robust enough to handle the surge in trainee numbers. This echoes Jahonga, Canute and Murey (2016), who found that students often wait long before securing attachments due to weak institutional–industry linkages. Similarly, ILO (2020) stresses that strong partnerships are essential in aligning TVET curricula with industry needs, yet industries can only absorb limited cohorts. Therefore, in the context of Uasin Gishu, increased enrolment without proportional industry absorption compromises the relevance and practical orientation of training, raising concerns about graduate readiness for the labour market.

4.5 Influence of Teaching Strategy, under Conditions of Increased Enrolment, on the Quality of Training

Under this section, the trainers and trainees responded to a series of questions that would help to answer the research question: In which manner does teaching strategy under condition of increased enrolment affect the quality of training in public TVET institutions in Uasin Gishu County, Kenya? The questions were in two categories: open-ended and closed questions.

To begin with, the open-ended questions were as follows:

4.5.1 Teaching strategy being employed by the institution

Table 4.20 below provides the summary of the results obtained on what teaching strategy are being employed by the institution.

Table 4.22: Trainers' and Trainees' Views on what teaching strategy are being employed by the institution.

S/NO	Teaching strategy	Frequency			
		Trainees		Trainers	
1	Online learning.	627	43.1%	41	70.7%
2	Discovery learning.	106	7.3%	7	12.1%
3	Group work.	317	21.8%	39	67.2%
4	Splitting classes.	184	12.6%	47	81.0%

Source: Author (2025)

The findings highlight various teaching strategies employed to manage increased enrolment in TVET institutions, key strategies are online learning and splitting classes.

Online learning was the most used strategy among trainers, with 70.7% acknowledging its use, compared to 43.1% of trainees.

Splitting classes emerged as the most frequently cited strategy among trainers (81.0%), yet only 12.6% of trainees recognized it as a method being used. This difference could indicate that while institutions implement smaller class sizes to enhance learning efficiency, trainees may not explicitly identify this as a distinct strategy but rather as a general institutional adjustment.

Group work was another widely used strategy, acknowledged by 67.2% of trainers and 21.8% of trainees. This suggests that trainers encourage collaborative learning to maximize engagement in larger classes, though trainees may perceive it as a natural part of learning rather than a specific response to increased enrolment.

Finally, discovery learning, which focuses on hands-on, self-guided exploration, was the least recognized strategy, with only 12.1% of trainers and 7.3% of trainees acknowledging its use. This may indicate that structured learning methods, such as online instruction and group activities, are more dominant in managing large class sizes compared to exploratory, student-driven approaches.

Overall, the findings suggest that institutions are leveraging a combination of technology, classroom restructuring, and collaborative learning to maintain teaching effectiveness amid growing student numbers. However, the lower recognition of discovery learning and discrepancies between trainers' and trainees' perspectives highlight potential areas for

improvement, such as increasing student engagement in digital learning and enhancing awareness of instructional strategies.

4.5.2 Trainers' and Trainees' Input on whether the teaching strategies are sufficiently effective in ensuring quality training

The table below provides the summary of the results obtained on whether the teaching strategies are sufficiently effective in ensuring quality training.

Table 4.23: Trainers' and Trainees' Input on whether the teaching strategies are sufficiently effective in ensuring quality training

Question		Frequency			
		Trainees		Trainers	
Are the teaching strategies sufficiently effective?	Yes	864	59.5%	43	74.1%
	No	417	28.7%	11	19.0%
	Don't Know	171	11.8%	4	6.9%
		Total=1452.		Total =58.	

Source: Author (2025)

The findings indicate that a majority of both trainees (59.5%) and trainers (74.1%) believe that the teaching strategies being implemented are sufficiently effective in ensuring quality training amid increased enrolment. This suggests a general confidence in methods such as online learning, blended learning, discovery learning, group work, and class splitting as viable approaches to maintaining instructional standards. The higher percentage of trainers supporting the effectiveness of these strategies implies that they see them as beneficial for managing larger student populations while still achieving learning objectives.

However, a significant proportion of respondents expressed concerns about the effectiveness of these strategies. 28.7% of trainees and 19.0% of trainers felt that the teaching strategies were not sufficient, indicating potential challenges in implementation. These concerns may stem from factors such as limited access to digital tools, difficulties in managing group work effectively, or the challenges of maintaining hands-on training quality in online or blended learning environments. Additionally, 11.8% of trainees and 6.9% of trainers were uncertain about the effectiveness of these strategies, suggesting a lack of clarity or mixed experiences in their application.

The findings highlight that while the majority view these strategies as effective, there is still room for improvement in their execution. Ensuring equitable access to digital resources, improving the facilitation of group work, and enhancing hands-on learning opportunities could help address concerns and further strengthen the quality of training in TVET institutions.

4.5.3 Challenges faced by the trainers in implementing teaching strategies

The table below provides the summary of the results obtained on challenges faced by the trainers in implementing teaching strategies.

Table 4.24 Trainers' and Trainees' Views on challenges faced by the trainers in implementing teaching strategies

S/NO	Challenges faced by the instructions.	Frequency			
		Trainees		Trainers	
1	Small classroom	782	53.9%	32	55.2%
2	Limited time for attending to individualized need of the trainees.	218	15.0%	19	32.8%
3	Insufficient resources e.g. lecture rooms	512	35.3%	38	65.5%
4	Poor internet connection.	164	11.3%	7	12.1%
	Total	1676		96	

Source: Author (2025)

The findings highlight several challenges faced by trainers and trainees in ensuring effective instruction amid increased enrolment in TVET institutions. The most frequently cited challenge by both groups is small classrooms, with 53.9% of trainees and 55.2% of trainers acknowledging this issue. This suggests that overcrowding is a major concern, likely affecting students' comfort, engagement, and the overall effectiveness of teaching and learning. Limited space may also contribute to distractions, reduced interaction, and difficulties in conducting practical training sessions.

Another significant challenge is insufficient resources, such as lecture rooms, noted by 35.3% of trainees and 65.5% of trainers. The higher percentage among trainers indicates that they experience greater difficulties in managing instructional spaces and ensuring all trainees have access to necessary facilities. This shortage of resources may lead to scheduling conflicts, inadequate hands-on training, and difficulties in delivering quality instruction.

Additionally, limited time for attending to individualized trainee needs was reported by 15.0% of trainees and 32.8% of trainers. This suggests that with increased class sizes, trainers struggle to provide personalized attention, which could negatively impact students who require extra guidance. The lower percentage among trainees may indicate that some students do not recognize this issue as strongly as trainers do, possibly because they have adapted to larger class sizes.

Finally, poor internet connection was mentioned by 11.3% of trainees and 12.1% of trainers as a challenge. While it is the least reported issue, it is still notable, especially considering the growing reliance on online and blended learning strategies. Unstable internet access could hinder digital learning, limit access to online resources, and disrupt communication between trainers and trainees. Overall, these findings emphasize the need for infrastructure improvements, better resource allocation, and strategies to enhance personalized instruction despite large class sizes. Addressing these challenges will be critical to ensuring that increased enrolment does not compromise the quality of training in TVET institutions.

4.5.4 Variation in class size impact the implementation and effectiveness of different teaching strategy

The table below provides the summary of the results obtained on how variation in class size impact the implementation and effectiveness of different teaching strategy.

Table 4.25 Trainers' and Trainees' Views on how variation in class size impact the implementation and effectiveness of different teaching strategy.

S/NO	Challenges faced by the institution	Frequency			
		Trainees		Trainers	
1	*Increased enrollment has increased absenteeism as trainees are discouraged to come to congested classrooms where they will strain listening from the trainer.*	794	54.7%	31	53.4%
2	*Increased enrollment hinders the trainers' effort to focus on one individual at a time.*	235	16.2%	17	29.3%
3	*large classes are strenuous in terms of preparing portfolio of evidence to monitor the progress of each trainee*	562	38.7%	41	70.7%
4	*increased enrolment has come with the problem of insufficient resources thus limiting the selection of applicable teaching strategies*	189	13.0%	9	15.5%
5.	*Increased enrollment has caused trainers to use strategies that are less involving and therefore trainees are less engaged hence lower concentration.*	201	13.8%	6	10.3%

Source: Author (2025)

The findings highlight significant challenges associated with increased enrolment in TVET institutions, particularly concerning classroom congestion, resource limitations, and reduced trainee engagement. The most frequently cited issue by both trainers (54.7%) and trainees (53.4%) is increased absenteeism due to congested classrooms and audibility challenges. This suggests that overcrowding discourages trainees from attending classes, as they struggle to hear trainers and actively participate in lessons. Such absenteeism can

negatively impact learning outcomes, leading to lower retention rates and reduced competency levels among trainees.

Another major concern is that large class sizes hinder trainers' ability to focus on individual trainees. This indicates that personalized attention, which is crucial for skill development, is becoming increasingly difficult to provide. Trainees who require additional support may struggle to keep up, potentially widening the knowledge gap among students.

Additionally, the strain of managing large classes affects trainers' ability to prepare portfolios of evidence to track trainee progress. This suggests that trainers are overwhelmed with documentation and assessment tasks, which may lead to delays in feedback and hinder effective monitoring of trainees' skill acquisition.

Limited resources due to increased enrolment was, indicating that the shortage of essential materials and facilities restricts the selection of effective teaching strategies. Without adequate resources, trainers may be forced to rely on traditional, less engaging teaching methods, which can affect the quality of training.

Lastly, the use of less engaging teaching strategies due to resource constraints was another concern. When trainers are unable to employ interactive methods, trainee engagement and concentration levels decline, ultimately affecting learning outcomes. This challenge underscores the need for better resource allocation and innovative teaching approaches that accommodate larger class sizes without compromising quality.

Overall, these findings emphasize the urgent need for infrastructure expansion, enhanced resource provision, and innovative instructional strategies to manage increased enrolment

effectively while maintaining high-quality training in TVET institutions. Addressing these issues will ensure that trainees remain engaged, receive individualized support, and develop the necessary skills for the workforce.

4.5.5 Extent the utilized teaching strategies incorporate technology and innovative approaches to address challenges being associated with increased enrolment.

The table below provides the summary of the results on to what extent the utilized teaching strategies incorporate technology and innovative approaches to address challenges being associated with increased enrolment.

Table 4.26 Trainers' and Trainees' Input on to what extent the utilized teaching strategies incorporate technology and innovative approaches to address challenges being associated with increased enrolment

Question		Frequency			
		Trainees		Trainers	
To what extent is teaching strategy utilized.	Small extent	716	49.3%	12	20.7%
	Moderate extent	317	21.8%	38	65.1%
	Great extent	813	60.0%	45	77.6%

Source: Author (2025)

The results indicate varying perspectives on the extent to which teaching strategies incorporate technology and innovative approaches to address challenges associated with increased enrolment in TVET institutions. A significant portion of trainees (49.3%) believe that these strategies are utilized only to a small extent, compared to just 20.7% of trainers. This discrepancy suggests that while trainers may feel they are integrating technology

effectively; many trainees may not perceive it as significantly improving their learning experience. Possible reasons for this perception gap could include limited access to digital tools, ineffective implementation of technology-driven teaching methods, or a lack of student engagement with these approaches.

On the other hand, 21.8% of trainees and 65.1% of trainers believe that teaching strategies are utilized to a moderate extent, indicating that while some technological and innovative approaches are being adopted, there is still room for improvement. This suggests a partial shift towards digital and blended learning methods, but not at a level that fully addresses the challenges of increased enrolment.

Interestingly, 60.0% of trainees and 77.6% of trainers feel that teaching strategies are incorporated to a great extent, highlighting that a majority of both groups recognize the integration of technology and innovative approaches in teaching. This could include methods such as online learning platforms, virtual simulations, blended learning, and digital assessment tools. The higher percentage among trainers may indicate confidence in their use of these strategies, while trainees may be benefiting from them but still face challenges such as unstable internet connections, lack of digital literacy, or difficulty in adapting to technology-driven instruction.

Overall, the findings suggest that while efforts are being made to integrate technology and innovation into teaching strategies, there remains a perception gap between trainers and trainees regarding their effectiveness. To enhance this, institutions should focus on expanding access to digital resources, improving trainer and trainee digital skills, and

ensuring that technology-based learning methods are interactive, engaging, and well-structured to effectively address the challenges of increased enrolment.

4.5.6 Roles that support systems play in enabling instructors to effectively implement teaching strategy

In the sixth question (on the role of support systems such as professional development opportunities and teaching resources), the respondents (trainers and trainees) indicated that provision of professional development measures such as arranging for and/or facilitating seminars and workshops that focus on strategies to cope with increased enrolment leads to: development of new skills to adopt to the evolving classrooms and increasing educational demands due to increased enrolment; maintaining effectiveness in delivery of instruction; provides the needful mentorship for trainers to maximize on equipping the trainees despite their numbers; increased ability to conduct classes online.

The table below provides the summary of the results obtained on roles that support systems play in enabling instructors to effectively implement teaching strategy.

Table 4.27 Trainers' and Trainees' Views on roles that support systems play in enabling instructors to effectively implement teaching strategy

S/NO	Role of support system	Frequency			
		Trainees		Trainers	
1	*Development of new skills and adaptation to changing classroom of educational demand*	102	7.0%	13	22.4%
2	*Gives mentorship to trainers to enable them fully equip students.*	53	3.7%	24	41.4%
3	*Creation of online classes*	213	14.7%	37	63.8%

Source: Author (2025)

The findings highlight the significant role of support systems, such as professional development opportunities and teaching resources, in helping trainers and trainees adapt to the challenges of increased enrolment in TVET institutions. The results indicate that professional development measures, such as seminars and workshops, are beneficial in various ways, though their impact is perceived differently by trainers and trainees. One key role of support systems is in developing new skills and adapting to changing educational demands, with 7.0% of trainees and 22.4% of trainers recognizing this benefit. The higher percentage among trainers suggests that they see professional development as essential for improving instructional effectiveness, whereas trainees may not directly perceive its impact on their learning experience.

Additionally, professional development provides mentorship for trainers to fully equip students despite large class sizes, a factor acknowledged by 41.4% of trainers but only

3.7% of trainees. This significant gap suggests that while trainers value mentorship as a tool for enhancing teaching strategies and handling increased student numbers, trainees may not be directly aware of how this impacts their education. The most widely recognized role of support systems, however, is facilitating the creation of online classes, with 63.8% of trainers and 14.7% of trainees identifying this as a key benefit. The lower percentage among trainees may indicate challenges in accessibility, engagement, or the effectiveness of online learning, suggesting that while trainers are adapting to digital platforms, trainees may still struggle with fully benefiting from them.

These findings underscore the need for stronger communication and implementation of support systems to ensure that both trainers and trainees maximize the benefits of professional development initiatives. More awareness should be created among trainees regarding how these support systems enhance their learning experience. Additionally, expanding mentorship programs can help trainers refine their teaching approaches to better accommodate large class sizes. Furthermore, increased investment in online learning infrastructure and digital resources is crucial to improving accessibility and engagement for trainees. By strengthening these support systems, TVET institutions can enhance instructional quality, adaptability, and student engagement, ensuring that increased enrolment does not compromise the effectiveness of training.

4.5.7 How trainee's outcomes, such as academic performance and skill acquisition, vary based on the teaching strategies.

The table below provides the summary of the results obtained on how trainees outcomes, such as academic performance and skill acquisition, vary based on the teaching strategies.

Table 4.28 Trainers' and Trainees' Views on how trainee's outcomes, such as academic performance and skill acquisition, vary based on the teaching strategies.

S/NO	How performance of skill acquisition varies	Frequency			
		Trainees		Trainers	
1	Lecture method reduces the ability to acquire skills	782	53.9%	32	55.2%
2	Some strategies inhibit the room for follow up and further guidance which interrupt with the process of knowledge skill acquisition.	218	15.0%	19	32.8%

Source: Author (2025)

The results reveal that trainers and trainees hold varying views on how teaching strategies impact academic performance and skill acquisition in TVET institutions. A significant portion of both trainees (53.9%) and trainers (55.2%) believe that the lecture method reduces the ability to acquire practical skills. This suggests that while lectures may be effective in delivering theoretical knowledge, they do not provide sufficient hands-on experience, which is crucial for skill-based training. The reliance on lecture-based instruction in practical disciplines may hinder students' ability to develop competencies that require direct application and practice.

Additionally, 15.0% of trainees and 32.8% of trainers indicated that some teaching strategies limit opportunities for follow-up and further guidance, which disrupts the process of skill acquisition. This finding underscores the importance of interactive and student-centered approaches that allow for continuous assessment, mentorship, and individualized support. When trainers lack the time or resources to provide adequate follow-up, trainees may struggle to master complex skills, ultimately affecting their competence and employability.

The differences in perception between trainers and trainees suggest that while trainers recognize the shortcomings of some teaching strategies, they may still rely on them due to resource constraints, large class sizes, or institutional policies. To address this issue, TVET institutions should consider blended learning approaches, integrating practical sessions, simulations, and mentorship programs alongside traditional lectures. Furthermore, structured follow-up mechanisms should be implemented to ensure trainees receive the necessary guidance to reinforce skill acquisition. By adapting more interactive and hands-on teaching strategies, institutions can enhance the quality of training and improve both academic performance and skill development among trainees.

4.5.8 Teaching strategies being employed align with industry demands and workforce needs during periods of increased enrollment.

The table below provides the summary of the results obtained on how teaching strategies being employed align with industry demands and workforce needs during periods of increased enrollment.

Table 4.29 Trainers' and Trainees' Views on how teaching strategies being employed align with industry demands and workforce needs during periods of increased enrollment.

S/NO	How teaching strategies align with industry demands.	Frequency			
		Trainees		Trainers	
1	Online learning orient learners to digital literacy which is a requirement in current workforce.	883	60.8%	48	82.8%
2	Use of field trips helps learners to align with industry needs.	305	21.0 %	51	87.9%
3	Group work helps in mentoring teamwork and collaboration.	612	42.1%	39	67.2%

Source: Author (2025)

The findings indicate that trainers and trainees recognize the importance of aligning teaching strategies with industry demands and workforce needs in TVET institutions. A significant proportion of both trainees (60.8%) and trainers (82.8%) agree that online learning plays a key role in enhancing digital literacy, a crucial skill in the modern workforce. This suggests that the integration of technology-driven instruction is beneficial in preparing trainees for the increasingly digital and technology-dependent job market. However, the gap in perception between trainers and trainees may indicate that while trainers recognize the potential of online learning, trainees may still experience challenges in accessibility, engagement, or practical application of digital skills.

Additionally, 21.0% of trainees and 87.9% of trainers believe that field trips help learners align with industry needs. The significant difference in perception suggests that while trainers view field trips as essential for exposing students to real-world industry environments, not all trainees may experience or benefit from them equally. This could be

due to limited opportunities, logistical challenges, or ineffective organization of these trips. Expanding access to well-structured industrial visits and partnerships with companies can help ensure that more trainees gain first-hand experience with workplace expectations.

Furthermore, 42.1% of trainees and 67.2% of trainers acknowledged that group work helps in mentoring teamwork and collaboration, which are essential skills in any professional setting. While both groups recognize its importance, the lower percentage among trainees may indicate that some students do not perceive group work as directly beneficial for their industry preparedness, possibly due to poor implementation, lack of clear objectives, or unequal participation in group activities.

These findings highlight the importance of enhancing the alignment between teaching strategies and industry demands. To improve this alignment, TVET institutions should strengthen online learning infrastructure to ensure trainees fully benefit from digital literacy training, expand and improve field trip opportunities to maximize industry exposure, and enhance group work methodologies to ensure tasks are practical, relevant to industry standards, and encourage active participation from all trainees. By refining these strategies, TVET institutions can better prepare trainees for workforce demands, ensuring they acquire both the technical and soft skills required in their respective industries.

4.5.9 Best practices and recommendations for optimizing teaching strategies.

The table provides the summary of the results obtained on best practices and recommendations for optimizing teaching strategies.

Table 4.30 Trainers' and Trainees' Views on best practices and recommendations for optimizing teaching strategies.

S/NO	Best practices and recommendations for optimizing teaching strategies.	Frequency			
		Trainees		Trainers	
1	Stabilizing Wi-Fi services to strengthen online learning.	918	63.2%	43	74.1%
2	Deploying more trainers to reduce workload.	341	23.5%	41	70.7%
3	Arrangement of makeup classes.	232	16.0%	36	62.1%
4	Embracing blended learning.	102	7.0%	23	39.7%
5	Encouraging trainees to work in groups	97	6.7%	16	27.6%
6	Providing more teaching and training resources.	213	14.7%	23	39.7%

Source: Author (2025)

The results highlight key best practices and recommendations for optimizing teaching strategies in TVET institutions, as identified by trainers and trainees. A majority of both trainees (63.2%) and trainers (74.1%) emphasized the importance of stabilizing Wi-Fi services to strengthen online learning. This suggests that while online learning is becoming an essential teaching approach, unreliable internet connectivity remains a significant barrier to its effective implementation. Addressing this challenge by improving internet infrastructure can enhance the accessibility and effectiveness of digital learning platforms, ensuring that trainees can fully benefit from online instructional resources.

Another widely recommended practice is deploying more trainers to reduce workload, as recognized by 23.5% of trainees and 70.7% of trainers. The higher percentage among trainers suggests that they feel the strain of large class sizes more acutely, making it difficult to provide individualized attention to trainees. Hiring more trainers would not only

ease workload pressures but also improve the quality of instruction and mentorship, ultimately benefiting trainees by ensuring a more interactive and engaging learning environment.

Additionally, arranging makeup classes was identified as an effective strategy by 16.0% of trainees and 62.1% of trainers. This recommendation suggests that trainers recognize the importance of additional instructional time to compensate for missed lessons or reinforce learning. However, the lower percentage among trainees may indicate that they either do not fully perceive the benefits of makeup classes or face challenges such as scheduling conflicts that limit their participation.

Furthermore, embracing blended learning was suggested by 7.0% of trainees and 39.7% of trainers as a way to optimize teaching strategies. This approach, which integrates both online and in-person learning, can provide a more flexible and interactive learning experience. Similarly, encouraging trainees to work in groups (6.7% of trainees, 27.6% of trainers) was recognized as a way to foster collaboration, teamwork, and peer learning, although the lower trainee response suggests that group work may not always be effectively implemented.

Lastly, providing more teaching and training resources was seen as a necessary intervention by 14.7% of trainees and 39.7% of trainers. The relatively low response from trainees may indicate a lack of awareness of how resource limitations impact instruction, whereas trainers, who directly handle these resources, are more affected by shortages. Expanding access to up-to-date learning materials, workshops, and equipment is essential to enhancing the overall learning experience.

These findings suggest that to optimize teaching strategies, TVET institutions should prioritize improving internet connectivity, recruiting more trainers, arranging additional learning sessions, adopting blended learning approaches, fostering teamwork, and enhancing the availability of training resources. Implementing these best practices will ensure a more effective and industry-relevant training experience, ultimately improving skill acquisition and workforce readiness among trainees.

Below are responses to closed ended questionnaire issued to trainers and trainees.

Table 4.31 below provides the summary of the results obtained on Statements on Influence of Teaching Strategy on Quality of Training

Table 4.31: Trainees' Views on Statements on Influence of Teaching Strategy on Quality of Training

S/NO	Statement	Frequency (in %)				
		SD	**D**	**N**	**A**	**SA**
1.	Increased enrolment has caused trainers to use teacher-centered approaches of teaching.	6.1	0	18.5	7.4	68.0
2.	Trainers have split trainees into manageable groups to manage the increased enrolment and by doing this, more inclusive learning has been enhanced to ensure quality training.	0	0	7.0	27.5	65.5
3.	Despite increased numbers of trainees, trainers have focused on attending to trainees' differentiated needs to ensure that every trainee is well equipped with necessary skills.	0	0	6.8	46.1	47.1
4.	Teaching strategies have remained unchanged even with increased enrolment and therefore there is insignificant decrease in quality training of trainees.	0	24.5	29.7	9.2	36.6
5.	Overwhelming numbers of trainees have made it hard for trainers to handle differentiated learning needs of trainees.	0	4.7	28.1	38.0	29.2
6.	If trainees' enrolment decreases, there will be better training as trainers will engage trainees in using learner-based approaches to ensure that trainees acquire more knowledge and skills.	13.3	18.9	28.7	7.3	31.8
8.	Increased enrolment has caused trainers to use teacher-centered approaches of teaching.	1.3	6.3	13.7	28.8	49.9

Source: Author (2025)

Table 4.29 provides the summary of the results obtained on Statements on Influence of Teaching Strategy on Quality of Training. A significant number of trainees (77.7%) agree that increased enrolment has led trainers to adopt more teacher-centered approaches. This shift may be a coping mechanism for managing large class sizes but could potentially reduce trainee engagement and limit practical, hands-on learning an essential component in technical and vocational education. Despite this, many trainees (93%) also acknowledge that trainers have responded by splitting trainees into smaller, manageable groups, which has helped promote more inclusive learning and maintain quality training. This strategy suggests that institutions are making efforts to adapt and uphold standards in the face of overcrowding.

Furthermore, 93.2% of respondents agree that trainers are making conscious efforts to address trainees' individual learning needs, which is a positive indicator that differentiated instruction is still being prioritized, even with high enrolment. However, 67.2% of trainees feel that teaching strategies have remained unchanged despite the enrolment surge, which has led to a noticeable decline in training quality. This indicates that while some trainers are adapting, others may still be relying on traditional methods that are less effective in large, diverse classes.

In addition, 67.2% of trainees agree that the overwhelming number of students makes it difficult for trainers to cater to individual learning needs effectively. This highlights a key challenge of mass enrolment reduced trainer-to-trainee interaction which can hinder skill acquisition and personalized feedback. Notably, a majority (39.1%) of trainees believe that if enrolment were reduced, trainers would be more likely to use learner-centered

approaches that better facilitate knowledge and skills acquisition. In conclusion, while some adaptive teaching strategies are being implemented in response to increased enrolment, many trainees still perceive a shift toward less interactive, teacher-centered methods. This underscores the need for institutional support in promoting flexible, learner-focused teaching models that can sustain training quality amid growing trainee numbers.

Table 4.32 Trainers Views on Statements on Influence of Teaching Strategy on Quality of Training.

S/NO	Statement	Frequency (in %)				
		SD	**D**	**N**	**A**	**SA**
1.	Increased enrolment has caused trainers to use teacher-centered approaches of teaching.	17.2	1.7	27.6	6.9	46.6
2.	Trainers have split trainees into manageable groups to manage the increased enrolment and by doing this, more inclusive learning has been enhanced to ensure quality training.	5.2	0	0	6.9	87.9
3.	Despite increased numbers of trainees, trainers have focused on attending to trainees' differentiated needs to ensure that every trainee is well equipped with necessary skills.	0	0	0	25.9	74.1
4.	Teaching strategies have remained unchanged even with increased enrolment and therefore there is insignificant decrease in quality training of trainees.	0	0	0	74.1	25.9
5.	Overwhelming numbers of trainees have made it hard for trainers to handle differentiated learning needs of trainees.	0	0	22.4	67.2	10.4
6.	If trainees' enrolment decreases, there will be better training as trainers will engage trainees in using learner-based approaches to ensure that trainees acquire more knowledge and skills.	0	0	8.7	3.4	87.9
7.	Increased enrolment has caused trainers to use teacher-centered approaches of teaching.	0	0	0	8.6	91.4

Source: Author (2025)

Table 4.32 provides the summary of the results obtained on Statements on Influence of Teaching Strategy on Quality of Training. A vast majority of trainers (91.4%) agree that increased enrolment has compelled them to adapt more teacher-centered approaches. This shift likely reflects the practical challenges of managing large classes, where individualized attention becomes more difficult, prompting trainers to rely on more directive, lecture-based methods. While such strategies may help maintain classroom control, they can limit hands-on engagement and reduce opportunities for active learner participation, which are critical in vocational training.

Despite this, trainers also indicate that adaptive measures have been introduced. An overwhelming 94.8% agree that trainees are being split into smaller, manageable groups to enhance inclusive learning. This approach demonstrates an institutional effort to maintain training quality by ensuring that all trainees have better access to instructional support, even within the constraints of high enrolment. Additionally, 100% of trainers affirm that, despite increased numbers, they have made efforts to address the differentiated learning needs of trainees, which suggests a commitment to personalized instruction where possible.

Interestingly, 100% of trainers also agree that teaching strategies have remained largely unchanged despite increased enrolment, yet they believe this has only led to an insignificant decline in training quality. This points to a confidence among trainers in their ability to uphold instructional standards, even if the methods are not significantly evolving. However, 77.6% also acknowledge that overwhelming enrolment numbers make it difficult to cater to all individual learning needs, indicating that while efforts are being made, they may not be fully effective across the board.

Finally, a resounding 91.3% of trainers believe that a decrease in enrolment would lead to improved training outcomes, as it would allow for greater use of learner-centered approaches that foster deeper knowledge and skills acquisition. In summary, the data shows that trainers are aware of the strain increased enrolment places on teaching strategies and quality but are also taking steps such as group management and addressing individual needs to mitigate the impact. However, the strong belief in the benefits of reduced enrolment suggests that more systemic support and innovative pedagogical adjustments are needed to sustain quality under growing student populations.

4.5.10 Principals' response on how teaching strategy under conditions of increased enrolment affects quality of training in public TVET institutions in Uasin Gishu County, Kenya.

Principals were interviewed on how teaching strategy under conditions of increased enrolment affects quality of training in public TVET institutions in Uasin Gishu County, Kenya. This objective has some questions in which the principals were asked, the questions asked and responses given by the principals were;

Table 4.33 Principals' response on how teaching strategy under conditions of increased enrolment affects quality of training in public TVET institutions in Uasin Gishu County, Kenya.

Source: Author (2025)

Thematic Area	Sub-Themes	Response	Principals Involved	Effect on Quality of Training
Influence of teaching strategy under conditions of increased enrolment on quality of training in public TVET institutions in Uasin Gishu County, Kenya.	**Teaching Approach**	Learner-centered approach considered time-consuming due to high enrolment; preference for teacher-centered methods	A, B, C, D (100%)	Limits active engagement and personalized instruction, reducing the effectiveness of training.
	Class Management	A: Difficult to split due to limited staff and space. B, C, D: Trainees split into small groups when classes are large	A (25%) B, C, D (75%)	Small groups improve trainer focus, but inconsistent application may lead to unequal experiences.
	Institutional Support	Institutions try to offer support, but it is inadequate due to consistent growth in trainee enrolment	A, B, D (75%)	Inadequate support weakens the delivery and consistency of quality training.
	Human Resource Capacity	Institutions have not maintained an ideal trainer-trainee ratio due to overwhelming numbers	C (25%)	Trainer overload hampers feedback, supervision, and instructional quality.
	Training Strategies	Commonly used strategies include group discussions and teacher-centered methods	A, B (50%)	Group discussions support collaboration, but overreliance on teacher-centered methods limits effectiveness.
	Infrastructure Development	No expansion efforts have been made despite increased enrolment	C, D (50%)	Lack of infrastructure expansion strains existing resources and undermines training quality.

Source: Author (2025)

The findings from the table clearly indicate that increased enrolment in public TVET institutions in Uasin Gishu County has significantly strained efforts to maintain quality training. All four principals acknowledged that while learner-centered approaches are ideal, they have become impractical due to large class sizes, resulting in a heavy reliance on teacher-centered methods. This shift limits active learner engagement, interaction, and personalized feedback, which are critical for effective skill acquisition in vocational education.

Although some institutions (Principals B, C, and D) have made efforts to split large classes into smaller groups to better manage training delivery, inconsistencies in class management remain, especially where staffing or space is limited. The inability to consistently apply this strategy leads to unequal learning experiences among trainees. Furthermore, despite attempts to provide financial, material, and infrastructural support, all institutions reported inadequacies in meeting the demands of increased enrolment. This lack of sufficient support has weakened the delivery of consistent, high-quality training.

The trainer-trainee ratio is another pressing concern, with all principals confirming that the ratio is not being maintained due to overwhelming numbers. This overload compromises the ability of trainers to give adequate attention, timely assessments, and effective supervision to trainees. In terms of teaching strategies, although group discussions are used to promote collaborative learning, the dominant reliance on teacher-centered methods still restricts learner autonomy and critical thinking development.

Finally, the absence of expansion in critical infrastructure such as workshops, libraries, laboratories, and digital access points further undermines the institutions' ability to offer

comprehensive, hands-on, and technologically relevant training. In conclusion, while some adaptive strategies have been employed, the overall quality of training in these TVET institutions remains at risk due to systemic limitations caused by increased enrolment without corresponding resource enhancement.

4.5.11 Discussion of the findings

The findings show that increased enrolment has pushed trainers toward more teacher-centred methods, such as lecture-based delivery, with less emphasis on individualized instruction or hands-on practical sessions. While strategies like class splitting, group work, and online learning have been introduced, their adoption appears inconsistent and largely reactive rather than systematically planned. The reduced frequency of individualized practical sessions reflects the strain on both trainers and resources, ultimately affecting the competency-based training model that underpins TVET education.

This outcome aligns with Wanjala and Too (2020), who observed that large class sizes in vocational institutions often lead to the abandonment of interactive, learner-centered methods in favor of approaches that are easier to manage administratively but less effective for skill acquisition. Similarly, UNESCO-UNEVOC (2023) emphasizes that increased enrolment without proportional increases in teaching staff inevitably undermines active learning and practical engagement, key pillars of quality TVET delivery.

The evidence also points to an underutilization of technology-based teaching despite the presence of online learning in some cases. While digital platforms can help address scalability, their effectiveness depends on infrastructure readiness, trainer capacity, and

student access to devices issues also noted in Mureithi (2019). As such, while some adaptive strategies are being used, they are insufficiently embedded in institutional teaching cultures to offset the challenges brought by increased enrolment.

In my interpretation, this reflects a compromise in pedagogical quality as trainers adapt to cope with class size rather than learner needs. This finding resonates with Tafase (2019), who emphasized that quality training relies on diversified teaching strategies that are learner-centered and competency-based. UNESCO-UNEVOC (2020) similarly observed that overcrowding in TVET settings limits interactive methods such as group work and project-based learning. As a researcher, I view this as a critical risk: the more classes expand, the more institutions drift away from the Competency-Based Education and Training (CBET) model Kenya has adopted. Sustaining quality therefore requires innovations such as blended learning, peer-assisted instruction, and modular timetabling to preserve practical engagement even under high enrolment.

4.6 How Utilization of Existing Infrastructure, under Conditions of Increased Enrolment, Affect Quality of Training.

During data collection process for the study, the questionnaire was issued to both the trainers and trainees in the four selected public institution in Uasin Gishu County. The questionnaire had both closed ended questions and the open-ended questions. On the same objective the interview was done targeting the four principals in the selected institutions.

The first part had open ended questions in which trainers and trainees were required to give their input. These questions were as follows.

4.6.1 Current capacity utilization of infrastructure (e.g., classrooms, laboratories, workshops).

In the first question the trainers and the trainees were required to give their opinion on the current capacity of utilization of existing resources amid increased enrolment.

Table 4.34 Trainers Views on the current capacity utilization of infrastructure.

S/NO	Capacity of infrastructure	Frequency			
		Trainees		Trainers	
1	Congested	1006	69.3%	53	91.4%
2	Underutilized	132	9.1 %	12	20.7 %
3	Standard	431	29.7%	33	56.9%

Source: Author (2025)

The results highlight a significant concern regarding the capacity utilization of infrastructure in TVET institutions amid increased enrolment. A majority of both trainees (69.3%) and trainers (91.4%) reported that classrooms, laboratories, and workshops are congested, indicating that the existing infrastructure is struggling to accommodate the rising number of students. Trainers, who experience these challenges firsthand, expressed a higher level of concern, suggesting that overcrowding is affecting both teaching efficiency and the quality of instruction. Congestion in learning spaces limits individualized attention, reduces opportunities for hands-on practice, and creates an uncomfortable learning environment, all of which can negatively impact skill acquisition and trainee performance.

Conversely, 9.1% of trainees and 20.7% of trainers indicated that some facilities remain underutilized, suggesting inefficiencies in resource allocation or scheduling. This could mean that while some areas are overcrowded, others are not being effectively used, pointing to a need for better management and distribution of resources. Additionally, 29.7% of trainees and 56.9% of trainers viewed the current infrastructure capacity as standard, implying that in some cases, the facilities are still adequate for the number of students. However, the difference in perception between trainees and trainers suggests that while some facilities may be sufficient, classrooms where students spend most of their time are likely the most affected by congestion.

To address these challenges, institutions need to expand and optimize their infrastructure. Possible solutions include constructing additional classrooms, laboratories, and workshops, implementing better scheduling strategies to evenly distribute student groups, and integrating blended learning approaches such as online and virtual simulations to ease pressure on physical spaces. Additionally, a thorough resource management assessment should be conducted to identify and repurpose underutilized areas effectively. By adopting these strategies, TVET institutions can create a more conducive learning environment, enhance skill acquisition, and maintain the quality of training despite increased enrolment.

4.6.2 Variation in infrastructure utilization amid increased enrolment impacts the learning environment and overall quality of training

Table below summarizes the results on how variation in infrastructure utilization amid increased enrolment impacts the learning environment and overall quality of training.

Table 4.35 Trainers' and Trainees' Views on how variation in infrastructure utilization amid increased enrolment impacts the learning environment and overall quality of training

S/NO	how variation in infrastructure utilization amid increased enrolment impacts the learning environment and overall quality of training	Frequency			
		Trainees		Trainers	
1	It Leads to missing of classes which negatively impacts quality	1231	84.8%	33	56.9%
2	There is limited individualized attention which denies opportunity for each trainee to be empowered.	1013	69.8%	37	63.8%
3	Access for workshops and other facilities is difficult because of the congestions adversely influence quality	764	52.6%	29	50.0%

The results from the study reveal that increased enrolment in TVET institutions, without a corresponding expansion in infrastructure, significantly undermines the quality of training offered. A large majority of trainees (84.8%) and over half of trainers (56.9%) reported that overcrowding leads to missed classes, disrupting the continuity of learning and affecting the overall quality of education. When students miss classes due to limited space or scheduling conflicts, they lose out on critical instructional time, which is essential in skill-based training environments. Additionally, 69.8% of trainees and 63.8% of trainers

indicated that large class sizes reduce the level of individualized attention trainees receive. In technical and vocational education, where hands-on guidance and close supervision are vital for effective skill development, limited interaction with trainers hampers the learning process and diminishes the capacity of learners to grasp practical concepts. Furthermore, access to key facilities such as workshops and laboratories is constrained by congestion, as reported by 52.6% of trainees and 50% of trainers. This limited access shortens the time available for practical sessions, which are a core component of competency-based training. When trainees are not adequately exposed to practical experiences, their skill acquisition remains superficial, affecting their readiness for the labor market.

These findings align with existing literature. Oketch (2007) emphasizes that TVET quality heavily relies on manageable class sizes and individualized attention, which become compromised when infrastructure does not keep pace with growing student numbers. Similarly, UNESCO-UNEVOC (2013) notes that overcrowded institutions struggle with resource allocation, leading to missed sessions and insufficient practical exposure. The World Bank (2020) also highlights that effective vocational education requires well-equipped and accessible training facilities, as practical experience is crucial to employability. Therefore, for TVET institutions to maintain and enhance training quality amid rising enrolment, there is a pressing need for investment in infrastructure, including classrooms, workshops, and learning materials. Without this, the core objectives of TVET providing job-ready skills and enhancing productivity are at risk of being compromised.

4.6.3 Strategies that are being employed by their institution to optimize the utilization of existing infrastructure.

On the third question the trainees and trainers were required to give their opinion on strategies that are being employed by their institution to optimize the utilization of existing infrastructure during periods of increased enrolment to ensure quality training is maintained

Table 4.36 Trainers and trainees Views on strategies that are being employed by their institution to optimize the utilization of existing infrastructure

S/NO	Strategies that are being employed by their institution	Frequency			
		Trainees		Trainers	
1	Ensuring that the timetabling process incorporates use of all facilities maximally.	1032	71.1%	41	70.7%
2	Introduction of online classes.	985	67.8%	35	60.3%
3	Combination of class streams with similar in large rooms.	743	51.2%	24	41.4%
4	Erection of tent to provide more room for learning.	1169	80.5%	47	81.0%

Source: Author (2025)

The data presented on strategies employed by TVET institutions to optimize infrastructure utilization during periods of increased enrolment reveals a proactive but mixed approach to maintaining training quality. The most widely reported strategy is the erection of tents to provide additional learning space, with 80.5% of trainees and 81.0% of trainers

acknowledging this measure. While this approach provides an immediate solution to space constraints, it may not offer an ideal learning environment due to issues such as noise, temperature fluctuations, and lack of access to proper teaching aids. Nonetheless, it reflects institutional efforts to prevent overcrowding and ensure that learning continues without major disruptions.

Another commonly cited strategy is ensuring that the timetabling process incorporates the maximal use of all available facilities (reported by 71.1% of trainees and 70.7% of trainers). Proper scheduling allows institutions to manage large student populations by spreading classes across different times and spaces, reducing congestion and improving facility accessibility. This method can be effective in optimizing limited resources, ensuring all students access learning opportunities without excessive delays or missed classes.

The introduction of online classes, supported by 67.8% of trainees and 60.3% of trainers, reflects a shift toward blended learning models. Online learning helps reduce pressure on physical infrastructure by allowing theoretical components to be delivered remotely. However, in TVET, where practical hands-on experience is essential, online delivery may not fully substitute the need for physical engagement with tools and equipment. Studies by Tuck (2007) and UNESCO (2016) indicate that while digital platforms can enhance flexibility, they require substantial investment in ICT infrastructure and digital literacy to be effective.

Another strategy mentioned is the combination of class streams with the same unit in larger rooms, which was noted by 51.2% of trainees and 41.4% of trainers. This strategy helps in reducing the total number of sessions needed, but it can lead to oversized classes,

potentially affecting the quality of interaction and personalized learning especially critical in TVET settings.

Overall, these strategies reflect the institutions' commitment to addressing infrastructure challenges. However, the success of these strategies in preserving training quality depends on proper implementation, continued investment in both physical and digital infrastructure, and the adaptability of instructors and students. As Oketch (2007) and the World Bank (2020) emphasize, infrastructure optimization must go hand in hand with quality assurance mechanisms to ensure that expanding access does not compromise the effectiveness of vocational training.

4.6.4 The challenges institution face in utilizing the existing resources.

The table below summarizes the views shared by the trainers and the trainees regarding the challenges faced by the institution in utilizing the existing resources.

Table 4.37 Trainers and trainees Views on the challenges the institution face in utilizing the existing resources.

S/NO	Challenges the institution face in utilizing the existing resources.	Frequency			
		Trainees		Trainers	
1	Insufficient funds for expansion of facilities.	211	14.5%	31	53.4%
2	Limited space for expansions.	463	31.9%	23	39.7 %
3	Poor internet connection which hinders online classes.	1267	87.3%	36	62.1 %
4	Small size of classrooms.	983	67.9%	27	46.6%
5	Few seats for use.	1153	79.7%	24	41.4%

Source: Author (2025)

The challenges identified by both trainees and trainers in utilizing existing resources in TVET institutions highlight critical bottlenecks that directly impact the quality of training,

especially in the context of increasing enrolment. The most widely reported challenge is poor internet connectivity, cited by 87.3% of trainees and 62.1% of trainers. This issue is especially problematic as many institutions attempt to integrate online learning as a solution to overcrowded classrooms. Without reliable internet, access to digital content, online assignments, and virtual classes becomes inconsistent, hindering the effectiveness of blended or remote learning strategies. As UNESCO (2016) notes, the digital divide remains a major barrier in realizing the full benefits of online and flexible learning in vocational education systems.

Another significant issue is the shortage of seating and small classroom sizes, reported by 79.7% and 67.9% of trainees respectively. These constraints lead to overcrowding, discomfort, and compromised attention spans among students, ultimately diminishing the learning experience. Trainers, though less impacted directly, also reported these challenges (41.4% and 46.6% respectively), indicating that such limitations reduce their ability to manage classes effectively and provide individualized support. According to Oketch (2007), the physical environment plays a vital role in learner engagement and the overall quality of TVET outcomes. When learners are crammed into tight spaces or forced to attend lessons without adequate seating, the delivery of both theoretical and practical content suffers.

Limited space for expansion was also acknowledged by 31.9% of trainees and 39.7% of trainers. In many urban institutions, physical space constraints prevent the construction of new facilities such as workshops or classrooms, which limits the institution's ability to scale up in response to growing student populations. Similarly, insufficient funds for facility expansion, though reported by only 14.5% of trainees, was a significant concern for 53.4%

of trainers. Trainers are more likely to be aware of institutional budget constraints, and this discrepancy highlights a gap in trainee awareness of the financial challenges facing their institutions.

These findings align with global studies that underscore the importance of sufficient and modern infrastructure in sustaining quality TVET. The World Bank (2020) emphasized that to meet labour market demands and technological advancements, TVET institutions must invest not only in infrastructure but also in maintenance, digital infrastructure, and human capacity. Without addressing these challenges, the effectiveness and credibility of technical and vocational training are at risk, particularly as enrolment continues to rise.

4.6.5 Condition and adequacy of existing infrastructure influence the ability to provide quality training.

The table below summarizes the views shared by the trainers and the trainees on the condition and adequacy of existing infrastructure influence the ability to provide quality training during periods of increased enrolment.

Table 4.38 Trainers' and Trainees' Views on the challenges the institution face in utilizing the existing resources

S/NO	Opinion on the condition and adequacy of existing infrastructure	Frequency			
		Trainees		Trainers	
1	Outdated building	321	22.1%	43	74.1%
2	Malfunctioning equipment.	1251	86.2%	28	48.3 %
3	Insufficient lighting.	432	29.6%	17	29.3 %
4	Faulty ventilation and leaking roof	123	9.1%	0	0%
5	Insufficient reference material for use.	1357	93.5%	31	53.4%

Source: Author (2025)

The responses from both trainees and trainers on the condition and adequacy of existing infrastructure highlight serious concerns that directly impact the quality of training in TVET institutions, particularly during periods of increased enrolment. One of the most pressing issues is the lack of sufficient reference materials, which was reported by 93.5% of trainees and 53.4% of trainers. In vocational education, access to textbooks, manuals, and instructional materials is vital for reinforcing both theoretical knowledge and practical skills. When these resources are lacking, learners are unable to adequately prepare for hands-on sessions or review complex procedures, reducing their competence and confidence. According to UNESCO (2016), resource availability is a key determinant of quality in technical education, as it directly supports curriculum delivery and student achievement.

Another major issue is malfunctioning equipment, cited by 86.2% of trainees and 48.3% of trainers. In a training environment where skills are developed through hands-on practice, faulty tools and machines severely hinder the learning process. Students may either receive

inadequate training or be forced to observe rather than practice, which diminishes the competency-based approach that TVET relies on. This aligns with the findings of the World Bank (2020), which emphasize that the functionality of training equipment is crucial for simulating real workplace conditions and ensuring that graduates meet labor market standards.

The concern over outdated buildings, highlighted by 22.1% of trainees and a significant 74.1% of trainers, points to aging infrastructure that may no longer support modern training needs. Trainers, being more familiar with the long-term structural limitations, recognize the effects of deteriorating facilities such as poor layouts, lack of modern amenities, and non-compliance with safety standards. Oketch (2007) stresses that physical infrastructure in TVET institutions must be conducive to both learning and safety, particularly when student numbers are on the rise.

Other reported issues include insufficient lighting (29.6% of trainees and 29.3% of trainers) and faulty ventilation or leaking roofs (9.1% of trainees). While these may appear minor, they collectively contribute to an uncomfortable and distracting learning environment. Poor lighting can hinder visibility during practical tasks, and inadequate ventilation can lead to discomfort or health issues, especially in crowded classrooms or workshops. These environmental factors are known to reduce student concentration and motivation, ultimately compromising training outcomes (UNESCO-UNEVOC, 2013).

In summary, the data reflects that inadequate and poorly maintained infrastructure significantly impairs the capacity of TVET institutions to deliver quality training. As enrolment increases, these issues are magnified, leading to overcrowded, under-resourced, and unsafe learning environments. Addressing them requires not only investment in

physical infrastructure but also regular maintenance and modernization to align with current training standards.

4.6.6 Opinion on the impact of infrastructure limitation on delivery of practical

Table 4.39 Trainers' and Trainees' Views on the impact of infrastructure limitation on delivery of practical.

S/NO	The impact of infrastructure limitation on delivery of practical.	Frequency			
		Trainees		Trainers	
1	*Overcrowding and limited access to equipment.*	1232	84.8%	51	87.9%
2	*Limited time of exposure with the equipment.*	971	66.9%	47	81.0%
3	*Theorizing of practical aspect.*	1359	93.6%	56	96.6%
4	*Limited number of practical sessions for a class.*	1359	93.6%	56	96.6%
5	*Reduced frequency of undertaking the practical.*	731	50.3%	31	53.4%

Source: Author (2025)

The results clearly demonstrate that infrastructure limitations in TVET institutions have a profound negative impact on the delivery of practical training, which is central to vocational education. A significant majority of both trainees (93.6%) and trainers (96.6%) reported that infrastructure shortages lead to the theorizing of practical aspects, where practical lessons are taught in theory due to inadequate equipment or space. This undermines the very essence of TVET, which is rooted in experiential, hands-on learning. Without practical application, trainees struggle to internalize skills, leaving them ill-prepared for real-world work environments. According to the World Bank (2020), practical skills development is the foundation of TVET, and its absence diminishes the employability and productivity of graduates.Another major concern is overcrowding and

limited access to equipment, reported by 84.8% of trainees and 87.9% of trainers. In such environments, learners often have to wait long periods before getting a chance to engage with tools and machines. This congestion limits effective interaction and restricts personalized instruction. As noted by UNESCO (2016), over-enrolled classes in under-equipped institutions result in reduced learning outcomes due to insufficient learner engagement and supervision.

Additionally, limited time of exposure to equipment (66.9% trainees, 81.0% trainers) and limited number of practical sessions (93.6% trainees and trainers) further constrain skill acquisition. These limitations may force instructors to shorten or combine sessions, reducing the time available for each student to practice. This approach may be detrimental in vocational fields where repeated exposure and practice are critical to mastering technical skills. Oketch (2007) argues that for effective competency-based training, students need sufficient time to interact with materials and apply what they've learned.

Finally, reduced frequency of undertaking practicals was reported by over half of the respondents (50.3% trainees, 53.4% trainers). This indicates that even when practical sessions are included in the curriculum, they are not conducted as often as required due to logistical challenges. As a result, the consistency needed for skill reinforcement is lost. Tuck (2007) emphasizes that frequent, well-structured practical sessions are key in bridging the gap between training and job-readiness.

In summary, the data shows that infrastructure constraints severely disrupt the delivery of practical components in TVET, especially as enrolment increases. This directly compromises training quality and the development of job-ready competencies, calling for urgent investment in expanding and upgrading facilities and equipment.

4.6.7 Measures taken to ensure the safety and compliance of trainees and staff when maximizing the utilization of existing infrastructure

The table summarizes the views shared by the trainers and the trainees on measures being taken by the institution to ensure the safety and compliance of trainees and staff when maximizing the utilization of existing infrastructure during periods of increased enrolment.

Table 4.40 Trainers' and Trainees' Views on measures being taken by the institution to ensure the safety and compliance of trainees and staff

S/NO	Measures being taken by the institution to ensure the safety and compliance of trainees and staff.	Frequency			
		Trainees		Trainers	
1	*Review of the rules to factor in overcrowding.*	211	14.3%	32	55.2%
2	*Regular inspection and maintenance of infrastructure.*	203	14.0%	41	70.7%
3	*Striking a proper balance in the allocation of rooms*	231	15.9%	37	63.8%
4	*Insisting the use of personal protective equipment.*	207	14.3%	26	44.8%
5	*Dividing trainees to manageable groups.*	406	28.0%	42	72.4%
6	*Increase number of fire assembly points.*	197	13.6%	11	19.0%

Source: Author (2025)

The data on measures being taken by institutions to ensure safety and compliance amid increased enrolment in TVET institutions reveals varied levels of intervention, many of which have a direct impact on the quality of training. Among the most effective measures is dividing trainees into manageable groups, supported by 28.0% of trainees and 72.4% of trainers. This strategy helps address overcrowding by reducing class sizes, thereby

improving both safety and the quality of interaction during practical sessions. Smaller, manageable groups allow instructors to offer more individualized attention and help maintain order in training environments, which is critical in technical disciplines that involve the use of tools and machinery. According to UNESCO (2016), manageable student-teacher ratios are key to ensuring effective supervision, safety, and quality outcomes in vocational training.Regular inspection and maintenance of infrastructure, acknowledged by 70.7% of trainers but only 14.0% of trainees, is another vital measure. Well-maintained buildings and equipment reduce the risk of accidents and ensure training facilities are functional and safe. Trainers are more likely to be aware of such institutional-level interventions, suggesting a possible communication gap between management and students. As noted by the World Bank (2020), infrastructure safety in TVET institutions is not only a compliance issue but also a determinant of learner well-being and the effectiveness of skill acquisition. Striking a proper balance in the allocation of rooms (15.9% trainees, 63.8% trainers) is another administrative measure aimed at minimizing congestion. Effective room allocation ensures that workshops, labs, and classrooms are not overwhelmed during peak periods, thus enabling smoother delivery of both theoretical and practical training. As emphasized by Oketch (2007), the physical environment in which training occurs significantly influences learner engagement and educational outcomes. Conversely, the relatively low percentage of trainees (14.3%) and trainers (44.8%) reporting the use of personal protective equipment (PPE) suggests a potential gap in safety compliance, particularly important in workshops and labs. PPE is essential to minimize injury risks, especially when dealing with electrical, mechanical, or chemical equipment. UNESCO-UNEVOC (2013) underscores that safety protocols and proper PPE usage are

essential elements of a well-functioning vocational training system. Other measures, such as reviewing institutional rules to factor in overcrowding and increasing the number of fire assembly points, received minimal support (all under 20% among trainees), suggesting either limited implementation or low visibility of these efforts. While these may not directly influence instructional quality, they are important for the overall safety and emergency preparedness of the institution, which contributes indirectly to a stable and effective learning environment.

In conclusion, while some measures like smaller group divisions and infrastructure maintenance contribute positively to both safety and quality of training, others such as PPE enforcement and emergency preparedness require more consistent implementation. These findings support global recommendations that safety and infrastructure planning in TVET institutions must evolve in tandem with student population growth to safeguard training quality and protect both learners and staff

4.6.8 Adequacy and accessibility of infrastructure during periods of increased enrolment.

The table below represents the data collected on adequacy and accessibility of existing infrastructure.

Table 4.41 Trainers' and Trainees' opinion on adequacy and accessibility of existing infrastructure.

S/NO	On adequacy and accessibility of existing infrastructure	Frequency			
		Trainees		Trainers	
1	*Average/moderate*	291	23.6%	28	48.3%
2	*Poor accessibility.*	200	18.8%	23	39.7%
3	*Minimal*	961	66.2%	7	29.3 %
	TOTAL	1452		58	

Source: Author (2025)

The views of trainers and trainees on the adequacy and accessibility of infrastructure during periods of increased enrolment in TVET institutions reveal serious limitations that can significantly compromise the quality of training. A notable 66.2% of trainees and 29.3% of trainers described the existing infrastructure as minimal, suggesting that the resources in place are far below what is required to support the current student population. This limitation results in overcrowded classrooms and workshops, reduced access to tools and equipment, and shorter training sessions all of which diminish the effectiveness of both theoretical instruction and hands-on learning. According to UNESCO (2016), the adequacy of training infrastructure is a core determinant of quality in TVET, especially in environments where technical competence must be demonstrated and practiced.

Furthermore, 18.8% of trainees and 39.7% of trainers reported poor accessibility to infrastructure. This likely points to issues such as limited physical space, scheduling conflicts, or inadequate facilities (e.g., too few workshops or labs for the number of students). Poor access restricts students' ability to fully engage in training activities and negatively impacts their learning outcomes. The World Bank (2020) emphasizes that

accessibility to infrastructure both in terms of physical access and usability is essential for inclusive and equitable education, particularly in vocational training where equipment interaction is key.

Interestingly, 23.6% of trainees and 48.3% of trainers rated infrastructure as average/moderate, indicating that some facilities may be functional but are likely overstretched. Trainers may have a slightly more optimistic view due to their deeper familiarity with institutional operations and perhaps efforts made to adjust through strategies like staggered sessions or resource sharing. However, even a “moderate” rating suggests that the infrastructure is only just managing current demands, and may not withstand further increases in enrolment without a decline in training quality.

In summary, these findings reflect a growing mismatch between institutional capacity and student numbers. Inadequate and poorly accessible infrastructure contributes to limited exposure to practical activities, reduced student engagement, and ultimately, lower employability of graduates. To ensure training remains relevant and effective, there is a critical need for investment in expanding and upgrading facilities to accommodate growing enrolment without sacrificing quality.

4.6.9 The role that infrastructure expansion or renovation play in mitigating the challenges associated with increased enrolment and quality maintenance.

The Table represents the data collected from trainees and trainers on the roles infrastructure expansion or renovation play in mitigating the challenges associated with increased enrolment.

Table 4.42 Trainers' and Trainees' opinion on the role that infrastructure expansion or renovation play in mitigating the challenges associated with increased enrolment

S/NO	Role that infrastructure expansion or renovation	Frequency			
		Trainees		Trainers	
1	*Infrastructure increases accommodation for the increased enrolment.*	1005	69.2%	47	81.0%
2	*Renovations helps to keep the room functional to accommodate increased enrolment of the trainees.*	965	66.5%	43	74.2%
3	*Provides enough space for practical work and learning.*	1123	77.3%	41	70.7%
4	*Increases access to facilities, enhancing quality.*	1007	69.4%	31	53.4%
5	*Renovation gives morale for learners to study in the institution.*	431	29.7%	12	20.7%

Source: Author (2025)

The data reveals a strong consensus among both trainees and trainers on the critical role that infrastructure expansion and renovation play in improving the quality of training in TVET institutions amid increased enrolment. A majority of trainees (77.3%) and a substantial portion of trainers (70.7%) agreed that infrastructure development provides enough space for practical work and learning, which is essential in vocational education. Adequate space ensures that learners can engage in hands-on activities safely and effectively, a cornerstone of quality training in TVET settings. According to UNESCO (2016), sufficient physical space and specialized facilities are fundamental for ensuring skill development, especially in technical and vocational education that relies heavily on experiential learning.

Similarly, 69.2% of trainees and 81.0% of trainers agreed that infrastructure expansion increases accommodation for the growing number of learners. This reflects the direct link between physical capacity and training quality—when institutions are overcrowded, not only is learner comfort compromised, but the effectiveness of instruction and access to resources also decline. The World Bank (2020) asserts that matching infrastructure development with enrolment trends is vital to prevent quality erosion in TVET institutions. Renovation also plays a key role in maintaining the usability of existing facilities. 66.5% of trainees and 74.2% of trainers observed that renovations keep rooms functional, which helps in sustaining learning activities despite increased pressure on resources. Functional infrastructure ensures consistency in the training process, minimizing interruptions due to equipment breakdowns or unsafe learning environments. As Oketch (2007) emphasizes, the condition of the training environment directly influences learner motivation and instructor efficiency. Moreover, 69.4% of trainees and 53.4% of trainers acknowledged that infrastructure improvements increase access to facilities, thereby enhancing quality. Improved access means more learners can participate in practical sessions, use learning materials, and benefit from shared resources, reducing the burden on overstretched facilities. Interestingly, a smaller proportion of respondents 29.7% of trainees and 20.7% of trainers linked renovations to improved learner morale. While this may seem less significant numerically, it highlights an important psychological aspect: well-maintained environments can boost student engagement and institutional pride. According to UNESCO-UNEVOC (2013), a positive learning environment contributes to better academic performance and reduced dropout rates in TVET programs. In conclusion, the findings clearly support the assertion that infrastructure expansion and renovation are

crucial strategies in maintaining and enhancing training quality in the face of growing student numbers. They not only increase institutional capacity but also improve access, functionality, and overall learning conditions factors that are indispensable for delivering effective vocational education.

4.6.10 Best practices and recommendation for optimizing the utilization of existing infrastructure.

Table below shows the summary of the responses from the trainers and trainers on best practices and recommendation for optimizing the utilization of existing infrastructure.

Table 4.43 Trainers' and Trainees' opinion on best practices and recommendation for optimizing the utilization of existing infrastructure

S/NO	Best practices and recommendation for optimizing the utilization of existing infrastructure	Frequency			
		Trainees		Trainers	
1	*Exercising proper spreading of classes to avoid clashes while ensuring that each group of learners secure a space for use.*	508	35.0%	51	87.3%
2	*Visiting libraries and workshops around the institutions.*	672	46.3%	19	32.6%
3	*Dividing trainees to smaller manageable groups.*	1207	83.1%	54	93.1%
4	*Incorporating educational tours and trips for learners to benefit.*	1178	81.3%	29	50.0%
5	*Implementing online classes.*	209	14.4%	41	70.7%
6.	*Prioritizing maintenance and upgrading the facilities from time to time.*	413	28.4 %	36	62.1%

Source: Author (2025)

The data from Table 4.39 highlights key best practices and recommendations for optimizing infrastructure utilization in Technical and Vocational Education and Training (TVET) institutions, which are crucial for maintaining quality training during periods of increased enrolment. One of the most widely supported strategies is dividing trainees into smaller, manageable groups, endorsed by 83.1% of trainees and 93.1% of trainers. This approach helps reduce overcrowding, enhances access to facilities and equipment, and enables more personalized instruction, which is essential in hands-on, skills-based training. As UNESCO (2016) notes, smaller class sizes in vocational training not only improve safety but also enhance learner engagement and outcomes.

Another highly supported recommendation is the incorporation of educational tours and trips (81.3% of trainees, 50.0% of trainers), which serve as an innovative way to supplement limited in-house infrastructure by exposing students to external industrial environments. Such tours enhance contextual learning and bridge the gap between theoretical knowledge and real-world application. According to the World Bank (2020), industry exposure through tours, internships, or attachments is vital in improving training relevance and employability in TVET programs.

The practice of exercising proper spreading of classes to avoid clashes is notably favored by trainers (87.3%) but less so by trainees (35.0%), indicating a planning-level intervention that may not be fully visible to learners. Proper scheduling maximizes the utilization of available space and resources, ensuring that all student groups get timely access to classrooms and workshops. This aligns with Oketch (2007), who emphasizes that efficient institutional management is a key factor in optimizing resource use and maintaining instructional quality.

The use of libraries and workshops around the institution (46.3% of trainees, 32.6% of trainers) also contributes to resource optimization, allowing learners to access supplementary learning materials and practice spaces. However, its relatively lower rating suggests possible underutilization or access challenges, such as insufficient materials or operational constraints.

The implementation of online classes is supported by 70.7% of trainers but only 14.4% of trainees, highlighting a potential digital divide or lack of readiness among students. Online learning can relieve pressure on physical infrastructure, especially for theoretical content, but requires adequate internet connectivity, digital literacy, and access to devices conditions not always present in many TVET contexts (UNESCO-UNEVOC, 2013).

Lastly, prioritizing the maintenance and upgrading of facilities (28.4% trainees, 62.1% trainers) is essential for ensuring continuous usability of infrastructure. Trainers' stronger support for this practice reflects their deeper understanding of how facility conditions impact lesson delivery. As highlighted by the World Bank (2020), regular maintenance prevents costly breakdowns and ensures safety and functionality, which are critical in technical training environments.

In conclusion, these best practices particularly smaller group sizes, scheduled facility use, and integration of external learning opportunities are essential for optimizing infrastructure use in TVET institutions. Their successful implementation can mitigate the negative effects of overcrowding and help sustain quality training despite rising enrolment.

Table 4.44 Trainees response on how the Utilization of Existing Infrastructure under Condition of Increased Enrolment of Trainees Affect Quality of Training

S/NO Statement	SD%	D %	N %	A %	SA %
1. Increased enrolment has limited access of trainers and trainees to library.	17.1	8.5	22.0	11.8	40.6
2. Time allocated for trainees has reduced due increased enrolment of trainees.	16.8	8.7	20.7	12.7	41.1
3. Increased enrolment has led to acquisition of better training.	45.2	14.5	13.1	18.9	8.3
4. Institution has expanded workshops, libraries and internet access due increased enrolment.	35.7	8.1	5.2	7.2	43.8
5. Trainees are rarely taken for practical sessions to acquire practical skills due to increased enrolment.	32.6	15.1	5.1	6.7	40.5
6. Trainers have had it hard to expose trainees to training facilities available due to increased enrolment of trainees.	29.3	7.4	8.1	13.8	41.4
7. Increased enrolment has caused scrambling for the available training facilities leading to limited exposure to the facilities.	27.1	9.4	7.2	17.3	39.0

Source: Author (2025)

A substantial number of respondents (52.4%) agree that increased enrolment has limited access to libraries for both trainers and trainees, while only 25.6% disagree. Similarly, 53.8% believe that time allocated for trainees has reduced due to overcrowding, suggesting that higher enrolment negatively affects personalized attention and learning schedules.

Notably, a majority (59.7%) disagree with the statement that increased enrolment has led to better training, indicating that the surge in trainee numbers may be diluting the overall quality of education and practical experience. On the other hand, there is a more optimistic view concerning infrastructural development, as 51% of respondents agree that institutions

have expanded workshops, libraries, and internet access to accommodate the growing population. This shows that while pressure on resources exists, some institutions are attempting to respond to the increased demand.

However, concerns remain regarding practical training. A combined 47.2% agree that trainees are rarely taken for practical sessions due to increased enrolment, suggesting that hands-on skill development a core component of TVET is being compromised. Similarly, 55.2% agree that trainers are finding it difficult to expose all trainees to available training facilities, and 56.3% believe that scrambling for limited facilities due to overcrowding is reducing trainee exposure.

In summary, the data indicates that while some efforts have been made to improve infrastructure in response to higher enrolment, the quality of training especially access to practical sessions and learning facilities has been negatively affected. Increased enrolment, if not matched with adequate resource expansion, continues to strain existing systems, limiting effective teaching and learning in TVET institutions.

Table 4.45 Trainers response on How the Utilization of Existing Infrastructure under Condition of Increased Enrolment of Trainees Affect Quality of Training

Statement	SD %	D %	N %	A %	SA %
Increased enrolment has limit access of trainers and trainees to library.	16.9	0	25.5	5.2	52.4
Time allocated for trainees has reduced due increased enrolment of trainees.	12.1	0	19.0	15.5	53.4
Increased enrolment has led to acquisition of better training.	79.3	5.1	5.2	10.4	0
Institution has expanded workshops, libraries and internet access due increased enrolment.	8.1	1.2	0	20.0	70.7
Trainees are rarely taken for practical sessions to acquire practical skills due to increased enrolment.	0	14.0	3.3	8.6	74.1
Trainers have had it hard to expose trainees to training facilities available due to increased enrolment of trainees.	0	0	0	12.1	87.9
Increased enrolment has caused scrambling for the available training facilities leading to limited exposure to the facilities.	0	0	3.5	10.3	86.2

Source: Author (2025)

The data clearly illustates the perceived impact of increased enrolment on access to resources and the quality of training within TVET institutions. A majority of respondents (57.6%) agree that increased enrolment has limited access to libraries for both trainers and trainees, indicating that essential learning resources are strained under the growing student population. Additionally, 68.9% of respondents agree that the time allocated for trainees has reduced, suggesting that trainers may be overwhelmed, leading to less individual attention and shortened instructional time.

Interestingly, a striking 84.4% disagree with the statement that increased enrolment has led to better training, with only 10.4% in agreement. This shows a strong consensus that the

surge in trainee numbers may be compromising rather than enhancing the quality of training. However, there is some optimism regarding institutional development, as 90.7% agree that workshops, libraries, and internet access have been expanded. This suggests that while enrolment increases pose challenges, some institutions are actively trying to upgrade their infrastructure to keep pace.

Despite these efforts, the most pressing concern is the limited access to practical training opportunities. An overwhelming 82.7% of respondents agree that trainees are rarely taken for practical sessions due to increased enrolment, and 100% agree that trainers struggle to expose all trainees to available training facilities. Furthermore, 96.5% agree that scrambling for limited training resources has resulted in reduced exposure, highlighting the seriousness of resource congestion in practical learning environments.

In summary, while there are positive steps being taken to expand institutional infrastructure in response to increased enrolment, the data overwhelmingly shows that the rapid rise in trainee numbers has negatively impacted access to resources, especially practical training opportunities. This imbalance between enrolment growth and training capacity poses a significant threat to the quality of vocational education and calls for urgent policy and institutional interventions.

4.6.11 Principals views on how the Utilization of Existing Infrastructure under Condition of Increased Enrolment of Trainees Affect Quality of Training

Principals were also interviewed on how utilization of existing infrastructure under the condition of increased enrolment affects quality of training. This objective has some questions in which the principals were asked, the questions were represented in table 4.46.

Table 4.46 Principals views on how the Utilization of Existing Infrastructure under Condition of Increased Enrolment of Trainees Affect Quality of Training

Thematic Area	Sub-Themes	Response	Principals Involved	Effect on Quality of Training
Influence of Utilization of Existing Infrastructure under Conditions of Increased Enrolment of Trainees on Quality of Training.	Access to Learning Resources	Principal A: Library is large enough and not all trainees use it simultaneously. Principal B: Books are scarce; internet issues hinder access to e-books. Principal C: Book hoarding limits access. Principal D: Library is too small.	A,B,C,D(100%)	Mixed access experiences; inadequate resources and space limit equal access, affecting independent learning and research.
	Access to Practical Facilities	All principals: Trainees lack enough time in workshops and labs due to high enrolment and limited time after group division.	A, B, C, D (100%)	Limits hands-on learning and practical skill acquisition essential for competency-based training.
	Availability of Equipment	Principals: Basic equipment exists, but is inadequate for the rising numbers. Some departments are better equipped than others. Time to use available equipment is insufficient.	A, B, C, D (100%)	Equipment shortage and time constraints hinder equitable, comprehensive skill training.

	Skill Acquisition	All principals: Increased numbers strain available machines, reduce focus, and limit time for practical's, negatively impacting skill development.	A, B, C, D (100%)	Inhibits effective practical training, diminishing competence and industry readiness of graduates.
	Exposure to Facilities	Three principals: Difficult to manage large trainee groups in practical areas; theoretical teaching preferred due to time and equipment limits.	B, C, D (75%)	Reduces personalized exposure and practical specialization, compromising training depth and relevance.
		One principal: Equipment adequacy varies by department.	A(25%)	

Source: Author (2025)

The table presents a clear depiction of how the utilization of existing infrastructure under increased enrolment conditions negatively affects the quality of training in public TVET institutions. From the findings, it is evident that while access to learning resources such as libraries exists, it is not uniformly adequate across institutions. While Principal A reported sufficient space, the others pointed to overcrowding, scarcity of books, and poor internet connectivity, all of which hinder equitable access to critical academic resources. These disparities compromise independent study and research opportunities for trainees.

Moreover, access to practical facilities like workshops and laboratories is strained. All principals agreed that due to the high number of trainees, time in these facilities is limited. This lack of access to practical exposure diminishes the competency-based model that TVET institutions strive to uphold. Similarly, while basic equipment is available, the quantity and accessibility are insufficient for the growing trainee population. This is compounded by time limitations, resulting in reduced engagement with training tools and machines.

The challenge of skill acquisition is directly tied to increased enrolment. The limited number of machines and insufficient time for hands-on practice affect trainees' ability to gain the practical skills necessary for their trades. Furthermore, trainers struggle to adequately expose trainees to specialized training facilities, often defaulting to theoretical teaching. This compromises the quality and relevance of training, as trainees do not gain enough practical experience in their areas of specialization.

Overall, the data underscores that rising enrolment without corresponding investment in infrastructure, equipment, and trainer support severely compromises the effectiveness of

TVET training. To sustain quality, institutions must address these infrastructure gaps and ensure that practical training keeps pace with theoretical instruction.

4.6.12 Discussion of the findings

The results indicate that increased trainee enrolment has significantly overstretched available physical facilities, including workshops, classrooms, and equipment. In many cases, the student-to-equipment ratio far exceeds the TVET Authority's recommended standards, limiting hands-on practice and increasing reliance on demonstrations rather than active participation. This compromises the quality of practical training, as skill development in vocational education relies heavily on repeated, supervised practice.

These findings corroborate the World Bank (2023) report on skills development in Sub-Saharan Africa, which highlights that inadequate training facilities remain a major bottleneck in TVET systems, especially where enrolment expansion is not matched with infrastructure investment. Mureithi (2019) similarly observed that overcrowded workshops lead to reduced practice time per trainee, lowering competency outcomes.

The resource strain is not limited to physical infrastructure but also extends to consumables such as raw materials for building and construction courses, where shortages reduce the scope and quality of training projects. This supports the observations by Kinyanjui (2018), who argues that without adequate resourcing, even the best-trained instructors cannot deliver industry-standard competencies.From a researcher's standpoint, this demonstrates that infrastructure is being stretched beyond its designed capacity, leading to diminished hands-on experience. This is consistent with Verspoor (2003), who argued that educational quality declines when enrolment expands without proportional resource growth. Oviawe (2020) also reported that overcrowded workshops in Nigerian polytechnics reduced skill

acquisition and increased safety risks. In line with Basuki et al. (2020), who recommend modular and reconfigurable workshop designs, the findings suggest that Uasin Gishu institutions must rethink infrastructure use, possibly adopting shared industry facilities or digital simulations to complement limited physical space. Thus, infrastructure elasticity is not infinite, and without strategic expansion, rising enrolment will continue to erode training quality.

4.7 To evaluate the effect of trainers' performance, amid of increased enrolment, on quality of training in public TVET institutions in Uasin Gishu County, Kenya

In the investigating this fourth objective, questionnaires were filled by trainees and trainers in the four selected public institutions. The four principals were also interviewed. In trainees and trainers , the questions used to collect information were as follows; student to trainer ratio, how trainers perceive impact of increased enrolment on workload, time allocation and ability to effectively deliver quality training, challenges encountered by the trainers, effect of variation in class size on trainers pedagogical approaches and instructional effectiveness, how institution provide resources to satisfy the demands, teaching methods adapted by trainers, assessment strategies ,effort that institution has put in place to enhance motivation, institution policies and if there are practices addressing the challenges, if there are what are some of this practices.

For the principals the interview collected the information on how trainers are able to manage classes due to increased enrolment ,numbers of hours trainers have per week, if the workload allows trainers to complete syllabus on time ,if the workload allow trainers to engage the learners, implementation of balanced coverage for theory and practical aspect

of syllabus and how it is done, strategies of administering formative assessment by the trainers and if the performance in KNEC exams has been affected.

4.7.1 Trainer to Trainee Ratio

Trainees and trainers were asked the approximate student to trainer's ratio in their institutions. Below is the response represented in a table 4.47 .

Table 4.47 Trainees and trainers view on the Trainer to student ratio in their institutions

Trainer to student Ratio	Trainees response		Trainers response	
1:65,1:60	403	28.3%	12	20.7%
1:50	861	60.5%	32	55.2%
1:40,1:45,1:35	188	13.22%	14	13.22%

Source: Author (2025)

The majority of trainees and trainers reported a student-to-trainer ratio of 1:50, indicating it is the most common. However, a notable proportion experienced higher ratios (1:60,1:65), suggesting overcrowding. Fewer respondents reported lower ratios (1:35,1:45), highlighting the need to improve staffing to enhance training quality. The student-to-trainer ratios reported (1:65, 1:50, etc.) are significantly above the recommended 1:20 ratio.Jacob and Ndubuisi, (2020). For effective teaching and learning. This imbalance indicates that trainers are unable to provide individualized attention, mentorship, and skill development opportunities to each trainee. High ratios contribute to a diluted educational experience, as trainers cannot cater to the diverse learning needs of each student. According to Smith and Evans (2022), an optimal student-to-trainer ratio is

crucial for maintaining quality in practical and theoretical training, especially in vocational education where hands-on experience is vital.

4.7.2 Impact of Increased Trainees'Enrolment on the Workload, Time Allocation and the Ability to Deliver Quality Training

During the data collection process for the study, the trainees and trainers were required to give their view on the impact of increased enrolment of trainees on the workload, time allocation and ability to deliver quality training which was represented in the table below.

Table 4.48 Impact of Increased Trainees' Enrolment on the Workload, Time Allocation and the Ability to Deliver Quality Training

S/NO	Impact of Increased Trainees' Enrolment on the Workload, Time Allocation and the Ability to Deliver Quality Training	Frequency Trainees		Trainers	
1	*It is a setback to preparedness of trainers to give effective training*	211	14.3%	21	36.2%
2	*It makes it tiresome leading to poor quality training*	123	8.5%	35	60.3%
3	*It requires more time to prepare teaching materials and progress records thus impacting quality of training negatively*	509	35.1%	51	87.9%
4	*It is difficult to manage delivery of quality training*	432	29.8%	23	40.0%
5	*Trainers are overworking*	709	48.8%	56	96.6%

Source: Author (2025)

The data clearly illustrates that increased trainee enrolment significantly impacts the quality of training in TVET institutions, particularly by affecting trainers' workload, time allocation, and capacity to deliver effective instruction.

A substantial majority of trainers (96.6%) reported that they are overworking, which directly indicates that increased enrolment puts immense pressure on trainers. This overworking is likely to result in burnout, reduced attention to individual trainee needs, and ultimately, a decline in training quality. Similarly, 87.9% of trainers noted that preparing teaching materials and progress records takes more time due to larger class sizes, thereby compromising the effectiveness and timeliness of training delivery. These findings align with UNESCO-UNEVOC (2021), which emphasizes that rising enrolment without proportional increases in staffing and resources leads to strained systems and diminished training outcomes.

Further, 60.3% of trainers indicated that the increase in trainee numbers makes the job more tiring, which they associate with poor training quality. This is supported by 40.0% stating it is difficult to manage quality training delivery under the current load, highlighting challenges in maintaining pedagogical standards. Only 36.2% of trainers reported that increased enrolment is a setback to preparedness, which, though lower, still reflects a significant concern in maintaining teaching readiness.

While trainees seemed to express these concerns at lower percentages possibly due to less awareness of instructional challenges their responses still reflect concern. For example, 48.8% observed that trainers are overworked, and 35.1% agreed that preparing materials takes more time, affecting training quality. This perception gap may indicate that trainees are not fully aware of the behind-the-scenes demands placed on trainers, yet the concerns they do express validate the trainers' challenges.

In summary, the data shows a strong negative correlation between increased enrolment and training quality in TVET institutions, primarily due to trainer overwork, limited time for

preparation, and difficulty in managing large class sizes. This reinforces findings by the World Bank (2020), which states that without adequate investment in teacher support and infrastructure, expansion in enrolment can degrade the quality of vocational education. Trainers reported increased workload, fatigue, and a decline in the quality of training. They mentioned difficulties in preparing teaching materials and managing large classes, which compromises the depth and quality of instruction. Increased enrolment amplifies trainers' workload, making it challenging to maintain high teaching standards. This situation aligns with the findings of Jones and Martin (2023), who highlight that excessive workload among educators often leads to burnout, reduced job satisfaction, and a decline in teaching effectiveness. Moreover, insufficient time allocation per trainee can result in superficial coverage of the curriculum, negatively impacting learning outcomes (Lee and Kim, 2021).

4.7.3 Challenges encountered in maintaining quality training

Trainees and trainers were required to share their view on the challenges they encounter in maintaining quality training due to increased enrolment. Some of the common responses were as captured below

Table 4.49 Trainees and trainers view on the challenges encountered in maintain quality training.

S/NO	Impact of Increased Trainees' Enrolment on the Workload, Time Allocation and the Ability to Deliver Quality Training	Frequency			
		Trainees		**Trainers**	
1	*there are few resources to manage large groups e.g. books and classroom*	813	56.0%	53	91.4%
2	*there is high student to trainer ratio*	802	55.2%	49	84.5%
3	*there is increased workload*	1204	82.9%	51	87.9%
4	*there is reduced time to prepare for classes*	407	28.0%	48	82.8%

Source: Author (2025)

The analysis reveals that increased trainee enrolment in public TVET institutions has significantly strained the ability to deliver quality training. A majority of trainees (56.0%) and an even higher proportion of trainers (91.4%) reported that resources such as books and classrooms are insufficient to support large groups, highlighting a critical gap in institutional capacity. Additionally, 55.2% of trainees and 84.5% of trainers acknowledged a high student-to-trainer ratio, which limits individual attention and instructional effectiveness. The issue of workload is particularly severe, with 82.9% of trainees and 87.9% of trainers indicating that enrolment growth has substantially increased their workload. Most notably, while only 28.0% of trainees recognized reduced preparation time, 82.8% of

trainers reported that their ability to prepare adequately for classes has been affected. These findings collectively show that rising enrolment without matching increases in staff and infrastructure results in overburdened trainers, overcrowded learning environments, and reduced instructional quality, ultimately undermining the goal of delivering effective and competency-based training. The major challenges identified include limited resources, high student-to-trainer ratios, and increased workload. Trainers faced difficulty in accessing necessary materials and facilities, which are often insufficient to accommodate the growing number of trainees. The shortage of resources and inadequate infrastructure are significant barriers to maintaining quality training. As noted by Garcia et al. (2021), a lack of resources in educational institutions can hinder the practical application of skills, essential for vocational training. The scarcity of materials and facilities can also lead to decreased student engagement and motivation.

A striking 82.9% of trainees and 87.9% of trainers indicated that increased enrolment has led to a notable rise in workload. This suggests that trainers are being stretched beyond optimal capacity, which can lead to burnout, reduced instructional quality, and less individual attention to students. As UNESCO (2021) notes, excessive workload in educational settings often undermines trainers' ability to deliver effective, learner-centered training, which is critical in skills-based TVET programs.

Additionally, 56.0% of trainees and a significant 91.4% of trainers reported that available resources such as books and classrooms are insufficient to manage large groups. This shortage of physical and instructional resources can severely compromise practical training, a core component of TVET programs. When access to equipment, books, or space is

limited, the quality of hands-on learning which is essential for skill development is diminished. This finding is supported by ILO (2020), which emphasizes that well-equipped learning environments are critical to the success of vocational education.

The high student-to-trainer ratio was also a major concern, with 55.2% of trainees and 84.5% of trainers acknowledging this issue. A high ratio means trainers are unable to provide adequate support and feedback, leading to a decline in student performance and engagement. Effective technical education relies heavily on personalized instruction, especially during practical training, and such ratios make this increasingly difficult (World Bank, 2020).

Finally, 28.0% of trainees and 82.8% of trainers reported a reduction in preparation time due to increased enrolment. For trainers, less time to prepare lessons and practical session's means that content delivery may become rushed or superficial, directly lowering the standard of training delivered.

The findings clearly show that increased enrolment, without corresponding investment in staffing, infrastructure, and learning materials, is straining the training system. This negatively affects the ability of trainers to maintain high standards and compromises the overall quality of training in TVET institutions. Addressing these challenges requires policy attention and targeted resource allocation to ensure that enrolment growth does not come at the expense of training quality.

4.7.4 Variation in Class Size Affects Pedagogical Approaches and Instructional Effectiveness

Trainers and trainees were required to express their thoughts on how variation in class size affects pedagogical approach and instructional effectiveness. The following are some of responses that were collected.

Table 4.50 Trainees and trainers view on how Variation in Class Size Affects Pedagogical Approaches and Instructional Effective

S/NO	How Variation in Class Size Affects Pedagogical Approaches and Instructional Effectiveness	Frequency			
		Trainees		Trainers	
1	*Increased numbers have led to use of teacher centered approach*	734	50.6%	45	77.6%
2	*It's hard to complete syllabus on time*	823	56.7%	49	84.5%
3	*Adopting of teaching strategies to accommodate increased population*	415	28.6%	26	44.8%
4	*Assessment of trainees is difficult."*	994	68.5%	51	88.0%
5	*Teachers find it hard to move around the class and maintain attention of learners.*	509	35.2%	34	58.6%

Source: Author (2025)

Firstly, 50.6% of trainees and 77.6% of trainers reported that increased numbers have led to a shift toward teacher-centered approaches. This shift suggests a reduction in interactive, learner-centered strategies that are vital in technical education, where hands-on practice and student participation are critical. A teacher-centered model often limits the opportunity for active learning, critical thinking, and individualized support, especially in practical subjects (UNESCO, 2021).

Secondly, 84.5% of trainers and 56.7% of trainees stated that it is hard to complete the syllabus on time. This delay can be attributed to limited time per student and logistical difficulties in managing larger classes, which affects content coverage and overall learner preparedness. As the World Bank (2020) highlights, timely syllabus completion is essential for ensuring that trainees acquire the full range of competencies expected in vocational programs.

Further, only 44.8% of trainers and 28.6% of trainees reported adopting new teaching strategies to manage increased enrolment, which may suggest a lack of adequate professional development or institutional support to help trainers adapt. Without the adoption of learner-inclusive methods such as group work, flipped classrooms, or technology-aided instruction, large classes risk becoming ineffective and disengaging.

One of the most significant findings is that 68.5% of trainees and 88.0% of trainers agreed that assessment of trainees becomes difficult in larger classes. Assessment is crucial in TVET for tracking skills acquisition and ensuring trainees meet industry standards. In large classes, meaningful and personalized assessment becomes challenging, which can compromise the credibility and effectiveness of training outcomes (ILO, 2020).

Lastly, 58.6% of trainers and 35.2% of trainees observed that movement around the classroom and maintaining learner attention is difficult. Limited physical interaction reduces a trainer’s ability to monitor progress, give feedback, and engage learners actively, especially during practical sessions where supervision and demonstration are key.

The data strongly indicates that larger class sizes due to increased enrolment negatively affect both teaching practices and instructional effectiveness in TVET institutions. These challenges ranging from reduced interaction to compromised assessment highlight the urgent need for policy reforms, resource investment, and teacher training to sustain and enhance training quality in expanding institutions.

4.7.5 Ways of Providing Resources to Satisfy Demands

Data collected on the above question was represented in the table below.

Table 4.51 Trainees and trainers view on ways of Providing Resources to Satisfy Demand

S/NO	*Ways of Providing Resources to Satisfy Demands*	Frequency			
		Trainees		**Trainers**	
1	*Establishing link with industries*	673	46.3%	34	58.6%
2	*Increasing procurement of resources*	1107	76.2%	53	91.4%
3	*Providing internet access points to facilitate online classes*	1294	89.1%	43	74.1%
4	*Providing tents as classrooms*	782	53.6%	56	96.6%
5	*Establishing more classes and associated infrastructure*	998	68.7%	57	98.3%

Source: Author (2025)

The data highlights key strategies that can be employed to address the pressure that increased enrolment places on the quality of training in Technical and Vocational Education and Training (TVET) institutions. These responses from both trainees and trainers underscore the urgent need for infrastructure expansion, technological integration, and resource strengthening to maintain instructional effectiveness.

One of the most widely supported interventions was establishing more classes and associated infrastructure, endorsed by 98.3% of trainers and 68.7% of trainees. This consensus demonstrates a critical recognition of overcrowding as a barrier to quality training. Without adequate space, trainers are unable to conduct effective hands-on sessions, and student engagement diminishes. According to UNESCO (2021), a supportive physical environment is a fundamental requirement for delivering competency-based education in TVET settings, especially when student numbers surge.

Providing tents as classrooms, though less conventional, was endorsed by 96.6% of trainers and 53.6% of trainees, indicating flexibility and a readiness to adopt temporary solutions. This reflects the immediacy of space needs in institutions experiencing rapid enrolment growth. Temporary structures can act as short-term solutions to relieve congestion and ensure continuity in training while permanent buildings are being developed.

Another critical strategy identified was increasing the procurement of resources, supported by 91.4% of trainers and 76.2% of trainees. This implies that institutions are facing shortages in essential training materials—books, tools, and workshop equipment that are vital for practical learning. The World Bank (2020) emphasizes that the quality of

vocational training depends heavily on the availability and accessibility of up-to-date learning and industrial-standard resources.

Providing internet access to facilitate online learning was endorsed by 89.1% of trainees and 74.1% of trainers, showing the growing importance of digital infrastructure in supporting education delivery. This approach offers opportunities to blend physical and digital instruction, enabling flexible learning schedules and reducing pressure on physical spaces. However, the relatively lower trainer support indicates a possible skills gap in digital instruction or a need for further support and training for staff (ILO, 2020).

Lastly, establishing links with industries received support from 58.6% of trainers and 46.3% of trainees. While slightly lower in endorsement compared to other strategies, this reflects an understanding of the importance of institutional partnerships in supplementing resource needs and aligning training with labor market expectations. Industry collaboration can offer access to equipment, attachments, and mentorship, which are essential for high-quality, work-based learning (UNESCO-UNEVOC, 2021).

The findings suggest that increasing enrolment in TVET institutions significantly impacts the quality of training. To counter this, a multifaceted resource mobilization strategy is required including infrastructure expansion, improved procurement, digital integration, and industry collaboration. Effective implementation of these measures will not only manage increased numbers but also sustain and enhance training quality.

Institutions have responded to increased enrolment by linking with industries, increasing resource procurement, and providing internet access. However, these measures are often

insufficient and temporary. While these initiatives demonstrate a proactive approach, they may not fully address the issues arising from increased enrolment. For instance, while providing internet access facilitates online learning, it also requires reliable infrastructure and digital literacy among trainers and students (Clark, 2022). Temporary solutions like tents for classrooms can alleviate immediate space issues but are not sustainable long-term.

4.7.6 How trainers adapt teaching methods Assessment Strategies and Classrooms Management Techniques to accommodate increased enrollment while ensuring quality training

The trainees and trainers in the four selected institutions were required to fill in the questionnaire on how to adopt teaching methods, assessment strategies and classrooms management techniques due to increased enrolment of trainees.

Table 4.52 Trainees and trainers view on How to Adopt Teaching Methods, Assessment Strategies and Classrooms Management Techniques

S/NO	How to Adopt Teaching Methods, Assessment Strategies and Classrooms Management Techniques	Frequency			
		Trainees		Trainers	
1	*Employing group discussion and peer teaching*	567	39.0%	45	77.6%
2	*Combining classes having same units*	786	54.1%	47	81.0%
3	*Giving assignments for research*	302	20.8%	43	74.1%
4	*Splitting classes when trainees are many*	987	68.0%	35	60.3%
5	*Exchange programme and blended learning*	409	28.2%	21	36.2%
6	Making use of online classes	210	14.5	12	20.7%

Source: Author (2025)

Trainers have adopted methods like group discussions, peer teaching, and blended learning to cope with increased enrolment. These adaptations indicate flexibility and resilience among trainers and trainees. However, combining classes and splitting them for different activities can strain resources and logistics, making consistent and effective instruction challenging. The effectiveness of these methods depends on the availability of supporting infrastructure and trainers' ability to manage diverse and large groups (Martinez et al., 2023).

The data provides insight into adaptive strategies that can be employed to mitigate the negative effects of increased enrolment on the quality of training in Technical and

Vocational Education and Training (TVET) institutions. As institutions face challenges such as overcrowded classrooms, limited resources, and overburdened trainers, the adoption of varied teaching, assessment, and classroom management techniques becomes essential.

Splitting classes when trainees are many received the highest support from 68.0% of trainees and 60.3% of trainers, indicating a strong perception that reducing student numbers per session could significantly improve engagement, personalized instruction, and assessment quality. Smaller class sizes are associated with better student performance, especially in practical and technical settings where hands-on guidance is essential (UNESCO, 2021).

Combining classes that have the same units was highly favored by trainers (81.0%) and moderately by trainees (54.1%). This strategy is seen as a means of optimizing limited teaching staff and resources. However, it must be managed carefully to avoid over-congestion and ensure that instructional quality is not compromised. If implemented effectively, this method can save time and promote consistency in content delivery across multiple classes.

Employing group discussions and peer teaching had strong support from 77.6% of trainers but only 39.0% of trainees. Trainers view this as a collaborative learning technique that can alleviate the teaching burden and foster deeper understanding through student interaction. Peer-assisted learning also develops soft skills such as communication and teamwork, which are critical in the labor market (ILO, 2020). However, the lower trainee support may stem from a lack of confidence or limited exposure to such strategies.Trainers likely see this as a way to extend learning beyond the classroom and manage time

constraints, but trainees may lack access to research resources or digital tools, highlighting a need to invest in libraries and ICT facilities to support this approach (World Bank, 2020). Exchange programs and blended learning received moderate support from trainees (28.2%) and limited support from trainers (36.2%). These methods offer potential to enrich learning experiences, foster cross-institutional collaboration, and integrate digital content delivery. However, their limited popularity points to infrastructural, logistical, and policy constraints that need addressing before widespread adoption can occur.

Making use of online classes was the least favored method, with only 14.5% of trainees and 20.7% of trainers supporting it. This reflects the broader challenge of digital divide in many TVET institutions in Kenya, where internet connectivity, digital literacy, and access to devices remain significant barriers (UNESCO-UNEVOC, 2021). While online learning offers flexibility, especially in high-enrolment environments, it must be supported by robust digital infrastructure and capacity-building efforts.

The data indicates that increased enrolment in TVET institutions necessitates flexible and innovative teaching approaches. Splitting classes, peer teaching, and combining units are among the most viable short-term strategies, while longer-term solutions such as blended learning and online classes require infrastructural investment and policy support. The varying perceptions between trainers and trainees also suggest the need for orientation and capacity building to ensure effective implementation of new pedagogical strategies.

4.7.7 Effects of Enhancing Motivation and Job Satisfaction

During the data collection process, trainees and trainers were required to state efforts that have been put in place of enhancing motivations, job satisfaction and overall performance in delivering quality training of trainees amid increased enrolment; below are some of the responses collected

Table 4.53 Trainees and trainers view on Effects of Enhancing Motivation and Job Satisfaction

S/NO	Effects of Enhancing Motivation and Job Satisfaction	Frequency			
		Trainees		Trainers	
1	*Providing support and mentorship*	1232	84.8%	48	82.6%
2	*Inviting motivational speakers*	504	34.7%	41	70.7%
3	*Partnering with experts*	1312	90.4%	46	79.3%
4	*Educational trips and excursion."*	1356	93.3%	51	87.9%
5	*Recognition and awards of trainees /trainers for their work*	978	67.4%	32	55.2%
6	*Providing scholarship*	1342	92.4%	49	84.5%

Source: Author (2025)

Efforts to enhance motivation and job satisfaction include mentorship programs, motivational speakers, and recognition awards. These initiatives are essential for maintaining morale and engagement among trainers and trainees. Motivational strategies can help mitigate some negative effects of increased workload and stress among trainers. As suggested by Chen and Yang (2021), recognition and rewards can enhance job

satisfaction and motivation, leading to improved performance. However, these efforts must be complemented by tangible improvements in working conditions and resources to be fully effective.

The data reveals that enhancing motivation and job satisfaction plays a significant role in maintaining the quality of training in TVET institutions, particularly in the face of increased trainee enrolment. A majority of trainees (84.8%) and trainers (82.6%) acknowledged that providing support and mentorship is critical. This form of personalized guidance helps address the individual needs of learners and supports trainers in managing workload and professional growth, especially under the pressure of larger class sizes (UNESCO, 2021). Additionally, a substantial number of respondents 90.4% of trainees and 79.3% of trainers highlighted the importance of partnering with industry experts. This not only aligns training with labor market demands but also enhances instructional relevance and learner motivation (World Bank, 2020). Educational trips and excursions were also highly valued, with 93.3% of trainees and 87.9% of trainers indicating their importance. These experiential learning opportunities supplement classroom instruction and are especially impactful in technical training, where practical exposure is key (UNESCO-UNEVOC, 2021).

Though inviting motivational speakers was less popular among trainees (34.7%), trainers (70.7%) still saw its value, suggesting that while external inspiration is useful, ongoing internal support may be more effective for learners. Recognition and awards were endorsed by 67.4% of trainees and 55.2% of trainers, underscoring the role of acknowledgment in boosting morale and encouraging high performance amid enrolment challenges (ILO,

2020). Lastly, the provision of scholarships emerged as one of the strongest motivational tools, with 92.4% of trainees and 84.5% of trainers supporting this initiative. Scholarships help reduce financial barriers, ensuring that economic constraints do not hinder access to quality training. Collectively, these findings emphasize that institutions must adopt comprehensive motivation strategies to ensure that increased enrolment does not compromise the quality of technical and vocational education.

4.7.8 Trainees and trainers view on effectiveness of Institutional Policies.

The table below gives response to the question; Are there any institutional policies and practices in your institution that are intended to address the challenges associated with increased enrolment of trainees and supporting quality training delivery? If yes, how do you find the effectiveness of the established institutional policies and practices in addressing the challenges associated with increased enrolment and supporting quality training of trainee's delivery?

Table 4.54 Trainees and trainers view over whether there are Institutional Policies and How Effective They Are

Question		Frequency			
		Trainees		Trainers	
Are there any institutional policies?	Yes	781	53.8%	37	63.8%
	No	225	15.5%	14	24.1%
	Don't Know	438	30.7%	7	12.1%

Source: Author (2025)

Table 4.55 Trainers and trainees view on how effective the institutional policies and practices are in addressing the challenges associated with increased enrolment and supporting quality training of trainee's delivery

Only those trainers' and trainees' who admitted that there were effectiveness of the established institutional policies and practices in addressing the challenges associated with increased enrolment and supporting quality training of trainee's delivery in table 4.54 answered how effective this policies were.

How Effective The Institutional Policies and practices are in addressing the challenges associated with increased enrolment and supporting quality training of trainee's delivery.	**Frequency**			
	Trainees		**Trainers**	
Moderately good as continuous efforts are being put in place to enhance inclusivity in training	601	77.0 %	27	73.0 %
Good	112	14.3 %	8	21.6 %
Not effective as policies are overtaken by more trainees coming in	68	8.7%	2	5.4%

Source: Author (2025)

Respondents reported mixed feelings about the effectiveness of institutional policies, noting that some policies are outdated and not adequately addressing the challenges posed by increased enrolment. Institutional policies play a crucial role in managing resources and setting standards for educational quality. However, as the dynamics of student enrolment change, policies must be regularly reviewed and updated. The effectiveness of these

policies depends on their ability to adapt to new challenges and support both trainers and trainees (Nguyen and Tran, 2023).

The data presented in the table shows that a majority of trainers (63.8%) believe that their institutions have policies in place, while 53.8% of trainees report the same. However, a notable proportion of both trainees (28.8%) and trainers (12.1%) were unsure about the existence of institutional policies, which may indicate a gap in communication or awareness regarding these policies within the institutions.

For those who affirmed the existence of policies, responses regarding their effectiveness varied. Some trainees and trainers described the policies as "moderately good," acknowledging that continuous efforts are being made to enhance inclusivity in training. This suggests that while some improvements are being made, challenges persist, particularly with managing the increasing enrolment numbers that TVET institutions face. Others described the policies as "good," suggesting a positive view of the current efforts. However, some responses indicated that the policies were "not effective," particularly because the policies are being outpaced by the rapid increase in the number of trainees. This highlights a key challenge: as enrolment numbers rise, existing policies may not be sufficient to manage the growing student population and the associated strain on resources, teaching capacity, and institutional infrastructure. This misalignment between policy implementation and growing enrolment can undermine the quality of training, as institutions may struggle to maintain high standards with overburdened resources and systems.

The responses suggest that while policies are in place, there is a need for regular review and adaptation to ensure they remain effective in addressing the challenges posed by increased enrolment. Without updating these policies to account for the rising numbers of trainees, the quality of training may be compromised, leading to overcrowded classrooms, insufficient learning materials, and insufficient support for both learners and instructors.

The data illustrates that institutional policies play a crucial role in shaping the quality of training in TVET institutions. However, the effectiveness of these policies in coping with the challenges of increased enrolment appears to be limited, with some participants noting that the policies are not keeping up with the rapid growth of trainees. A more dynamic and adaptive approach to policy formulation, with a focus on scalability and resource allocation, will be essential to maintaining the quality of training as enrolment continues to increase.

4.7.9 Strategies that institutions employ to engage and support diverse trainees populations.

The trainees and trainers in the four selected institutions were required to fill in the questionnaire on how to adopt teaching methods, assessment strategies and classrooms management techniques due to increased enrolment of trainees.

Table 4.56 Trainees and trainers view on Strategies that institution employ to engage and support diverse trainees populations during periods of increased enrolment

S/NO	How to Adopt Teaching Methods, Assessment Strategies and Classrooms Management techniques due to increased enrolment of trainees.	Frequency			
		Trainees		Trainers	
1	*use of online classes*	601	41.2%	53	91.4%
2	*purchase of tents to accommodate the increasing populations*	987	68.0%	37	63.8%
3	*constructing more infrastructure and classes*	1297	89.3%	55	94.8%
4	*Offering mentorship programs*	896	61.7%	34	58.6%

Source: Author (2025)

Strategies like online classes, additional infrastructure, and mentorship programs are employed to support the diverse needs of trainees. These strategies indicate an effort to provide inclusive and comprehensive education. Online classes, for instance, can offer flexibility and access to a wider range of resources. However, they also require proper infrastructure and support systems to be effective. As highlighted by Davis and Johnson (2023), integrating ICT in education can enhance learning outcomes, but it requires investment in technology and training for both trainers and students.

The data presented reveals various strategies adopted by trainees and trainers in response to the increasing enrolment in TVET institutions, aiming to maintain or improve the quality of training. One of the primary strategies highlighted is the use of online classes, which was supported by 91.4% of trainers, but only 41.2% of trainees. This significant difference

suggests that while trainers view online classes as an effective tool to manage the larger student population, trainees may prefer more traditional, hands-on learning approaches, which are essential in technical education. This discrepancy indicates that a blended learning model, combining online resources with practical training, could better serve the diverse needs of learners (UNESCO, 2021).

Another common strategy involves the use of tents to accommodate increasing populations, with 68.0% of trainees and 63.8% of trainers reporting this approach. While tents offer a temporary solution, they raise concerns about the adequacy of the learning environment. Tents often lack the necessary infrastructure such as proper lighting, ventilation, and noise control, all of which are crucial for effective learning. This suggests that while tents may be a quick fix, they are not a sustainable solution, and institutions should prioritize long-term investments in infrastructure to ensure an optimal learning environment (ILO, 2020).

The most widely supported strategy, however, is the construction of additional infrastructure and classrooms, with 89.3% of trainees and 94.8% of trainers favoring this approach. Expanding physical space is essential to prevent overcrowded classrooms and ensure adequate room for practical training. This aligns with the growing need for institutions to manage the larger influx of students while maintaining high educational standards. However, the success of this strategy depends on timely construction and proper maintenance, as poorly designed or overcrowded new buildings could continue to pose challenges to the quality of training (World Bank, 2020).

Finally, mentorship programs were identified as another key strategy, supported by 61.7% of trainees and 58.6% of trainers. With increased enrolment, individualized attention

becomes increasingly important, and mentorship offers a valuable opportunity for students to receive guidance and support. While this strategy is recognized as beneficial, the relatively lower support from trainers indicates that implementing effective mentorship programs may be hindered by the availability of experienced mentors and time constraints. To maximize the effectiveness of mentorship, institutions should focus on providing adequate training and resources for mentors (UNESCO-UNEVOC, 2021).

Overall, the data suggests that while various strategies have been adopted to manage the effects of increased enrolment, there are challenges that institutions must address to ensure sustainable and effective solutions. The need for infrastructure expansion, appropriate integration of technology, and the expansion of mentorship programs are critical to maintaining the quality of training in the face of growing student populations.

In the section of close-ended questions, the trainers and trainees provided responses which were analyzed and presented in the table as follows:

Table 4.57: Trainers Response on the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

S/NO	Statement	Frequency (in %)				
		SD	**D**	**N**	**A**	**SA**
1	There is decrease in quality training due to trainers being assigned more classes	20.6	0	0	19.1	60.3
2	Increase workload to trainers has made learning to only focus on enabling trainees to do KNEC exams	0	0	0	39.7	60.3
3	Trainers' pedagogical strategies have not been inclusive and effective in equipping trainees	0	0	1.7	27.6	70.7
4	Trainers give trainees less assignments and CATs	58.6	0	22.4	19.0	0
5	Trainers have lacked enough time to prepare trainees for exams and this has caused poor performance in KNEC exams	0	0	0	31.0	69.0
6	Because of trainees' increased enrolment, trainees have had to learn some things on their own because trainers are very occupied and this has negatively influenced the quality training of trainees	0	0	0	15.5	84.5

Source: Author (2025)

The data indicates that increased enrolment in TVET institutions has placed a heavy burden on trainers, negatively affecting the quality of training delivered. A majority (60.3%) strongly agree, and 19.1% agree, that assigning trainers more classes has led to a decline in training quality. This increase in workload appears to shift the focus of teaching from holistic skill development to merely preparing trainees for examinations, particularly the KNEC exams a view supported by 60.3% strongly agreeing and 39.7% agreeing. Furthermore, 70.7% of respondents strongly agree that pedagogical strategies have become less inclusive and less effective in equipping trainees with necessary skills, suggesting that

trainers may be defaulting to less engaging or participatory teaching methods due to time constraints and class sizes.

Interestingly, while a significant portion (58.6%) strongly disagrees with the claim that trainers give fewer assignments and CATs, 22.4% remain neutral and 19.0% agree, pointing to inconsistencies in how different trainers manage their workload. A critical concern is that 69.0% strongly agree and 31.0% agree that trainers have insufficient time to adequately prepare students for exams, which has led to poor performance in national assessments. Additionally, an overwhelming 84.5% strongly agree that increased enrolment has forced trainees to rely more on self-learning because trainers are too overwhelmed a factor that may further undermine the structured, hands-on approach that TVET institutions are meant to provide.

Overall, the findings suggest a widespread perception that the rapid increase in trainee enrolment, without a matching increase in training staff and resources, has compromised instructional quality, trainer effectiveness, and ultimately, the preparedness of trainees for both exams and real-world applications.

Table 4.58: Trainees Response on the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya

S/NO	Statement	Frequency (in %)				
		SD	**D**	**N**	**A**	**SA**
1	There is decrease in quality training due to trainers being assigned more classes	10.0	11.6	20.5	20.5	36.8
2	Increase workload to trainers has made learning to only focus on enabling trainees to do KNEC exams	0	7.9	27.3	33.2	31.6
3	Trainers' pedagogical strategies have not been inclusive and effective in equipping trainees	0	15.8	25.7	25.4	33.1
4	Trainers give trainees less assignments and CATs	0	2.8	27.4	20.2	49.6
5	Trainers have lacked enough time to prepare trainees for exams and this has caused poor performance in KNEC exams	0	49.0	2.3	11.0	37.7
6	Because of trainees' increased enrolment, trainees have had to learn some things on their own because trainers are very occupied and this has negatively influenced the quality training of trainees	0	10.8	19.2	20.5	49.5

Source: Author (2025)

The data reveals that increased enrolment in TVET institutions has led to significant strain on trainers, thereby affecting the quality of training. A combined 57.3% of respondents (36.8% strongly agreeing and 20.5% agreeing) believe that the assignment of more classes to trainers has decreased training quality. Additionally, the increased workload has shifted learning priorities, with 64.8% (33.2% agree and 31.6% strongly agree) indicating that

instruction now largely focuses on preparing trainees for KNEC exams, rather than comprehensive skill development.

There is also concern about the inclusivity and effectiveness of teaching methods, with 58.5% (25.4% agree and 33.1% strongly agree) acknowledging that trainers' pedagogical approaches have not fully addressed trainees' diverse learning needs. A large number of respondents (49.6%) strongly agree that trainers now assign fewer assignments and CATs, possibly due to time constraints caused by overcrowded classes.

Furthermore, 37.7% strongly agree and 11.0% agree that trainers lack sufficient time to prepare learners for exams, though 49.0% disagree, indicating some variance in how this issue is experienced across institutions. Most critically, 70% (20.5% agree and 49.5% strongly agree) of respondents report that trainees are forced to learn independently because trainers are overwhelmed a clear sign of the negative impact of increased enrolment on training quality.

In summary, the findings show that rising enrolment numbers without a proportional increase in staff and support systems are overstretching trainers, leading to compromised teaching quality, reduced trainee engagement, and a narrow focus on exam readiness over practical skill acquisition.

4.7.10 Effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya

Principals were interviewed on how increased enrolment in selected public TVET institutions affects trainer's performance on delivery of quality training.

This objective had some questions in which principals were asked. These questions included ; how trainers are able to manage their classes while maintaining quality training

with increased enrolment, hours that trainers has per week, if the workload allows trainers to complete syllabus on time ,engage learners maximally and affects timely coverage of the syllabus, if the increased enrolment has affected the implementation of a balanced coverage(both for practical sessions and theory sessions) and how it is done, strategies of administering formative assessment and if the performance of trainees in KNEC exams has been affected.

4.7.11 Principals response on Influence of Trainers' Performance, under the Condition of Increased Enrolment, on the Quality of Training.

Table 4.59 Principals response on Influence of Trainers' Performance, under the Condition of Increased Enrolment, on the Quality of Training

Thematic Area	Sub-Themes	Response	Principals Involved	Effect on Quality of Training
Influence of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.	Class Management	Managing classes has become difficult due to increased enrolment; though possible, it compromises quality	A, B, C, D (100%)	Overcrowded classes hinder engagement and trainer effectiveness, reducing overall quality of training
	Trainer Workload. Contact Hours per Week	Trainers have between 28–32 contact hours weekly	A (32 h, B, C, D (28 hrs)	High contact hours limit time for preparation, reflection, and learner support
	Syllabus Completion & Learner Engagement	Syllabus often not completed, especially practical components; workload limits meaningful engagement	A, B, C (75%)	Incomplete syllabus coverage leads to knowledge gaps and undermines training effectiveness

	Assessment Practices	Formative assessments have declined in quality and frequency due to increased workload and time pressure	A, B, C, D (100%)	Reduced feedback and assessment weakens monitoring of learning progress and training outcomes
	Trainee Performance	KNEC results have declined; incomplete syllabus coverage leaves trainees ill-prepared	A, B, C, D (100%)	Poor exam outcomes reflect compromised training quality and readiness for industry or further education

The results indicate that increased enrolment in public TVET institutions in Uasin Gishu County has significantly affected the quality of training, primarily by overburdening trainers and overstretching institutional resources. All principals interviewed acknowledged that managing classes has become increasingly difficult due to overcrowding. Although trainers still strive to manage these classes, the quality of instruction is compromised as overcrowded environments hinder individual engagement and reduce the effectiveness of trainers. In terms of workload, trainers are reported to handle between 28 to 32 contact hours per week, leaving little time for lesson preparation, individualized learner support, and reflection. This excessive workload affects their ability to deliver well-structured and effective lessons.

Furthermore, 75% of principals reported that trainers often fail to complete the syllabus, particularly the practical components, due to time constraints and the heavy workload. This limits meaningful learner engagement and leaves trainees with gaps in essential knowledge

and skills. All principals also agreed that the quality and frequency of formative assessments have declined. Due to the pressure of time and high class loads, trainers are unable to provide regular feedback or monitor learner progress effectively. This diminishes the ability to address learning challenges promptly. Lastly, all principals observed a decline in trainee performance, particularly in KNEC examination results, which they linked to incomplete syllabus coverage and limited trainer support. This reflects a broader issue of compromised training quality, ultimately affecting trainees' preparedness for industry or further academic pursuits. Overall, the data underscores the urgent need for systemic interventions to support trainers and enhance training quality in the face of rising enrolment.

4.7.12 Discussion of the findings

The data shows that increased enrolment in TVET institutions has had a big impact on trainers' performance. Most trainers (about 60%) strongly agree that teaching more classes has reduced the quality of training. Trainees also noticed this, although their opinions are more divided, with some agreeing and others not sure or disagreeing. This suggests that while trainers feel overworked, trainees may not fully understand how this affects their learning. Trainers also said that because of the heavy workload, they mostly focus on helping students pass the KNEC exams, instead of offering a wide range of skills and knowledge. Trainees agree with this to some extent, but many are neutral or less sure. This means that although the pressure is real for trainers, not all trainees see the change clearly. A large number of trainers also feel their teaching methods are no longer effective or inclusive because of the high number of students. While some trainees agree, others are either neutral or don't see much difference. This shows that some students may still benefit

from the training, but others might be left out. Interestingly, most trainers said they still give assignments and tests, but many trainees feel the opposite. Nearly half of the trainees strongly believe they are getting fewer assignments and tests. This shows a gap in understanding between trainers and trainees maybe trainers give work but don't follow up or give feedback often. Another problem trainers mentioned is that they don't have enough time to prepare students well for exams. Most trainers agree with this, but almost half of the trainees don't feel the same way. This difference may be because trainees are not aware of how much time and effort proper preparation takes.

The data shows that trainers are managing workloads well above recommended trainee-to-trainer ratios, often exceeding the TVET Authority's guideline of 1:20, with some cases approaching 1:65. This imbalance results in reduced contact hours per trainee, delayed assessments, and less opportunity for providing targeted feedback. While trainers have adapted through techniques such as group assessments and class splitting, these measures are palliative rather than sustainable solutions.

This is consistent with UNESCO-UNEVOC (2023), which warns that excessive trainer workloads in TVET systems erode instructional quality and limit the development of technical competencies. Mureithi (2019) and Wanjala and Too (2020) also highlight that trainer fatigue and high teaching loads often lead to superficial coverage of content, rushed delivery, and diminished opportunities for formative assessment.

Furthermore, increased workload correlates with reduced industry engagement by trainers, as time constraints limit opportunities to update their own skills through industrial attachment or participation in sectoral workshops. This mirrors findings by the World Bank

(2023), which emphasizes that trainer upskilling is critical to maintaining relevance in fast-changing technical fields.

As a researcher, I interpret this to mean that the trainer-to-trainee ratio is now unsustainable, pushing trainers to adopt survival strategies at the expense of quality. This aligns with Idialu (2013), who noted that trainer competence and individualized instruction are core determinants of TVET quality. Similarly, Kyriacou (2001) observed that high workloads contribute to teacher stress and burnout, undermining performance. In the vocational context, UNESCO (2016) prescribes a maximum ratio of 1:20 for practical classes, yet in Uasin Gishu institutions the average is 1:40. This double burden not only reduces assessment effectiveness but also risks lowering motivation and professional satisfaction. The findings therefore point to an urgent need for additional staffing, continuous professional development, and workload management strategies to sustain quality in the face of rising enrolment.

4.8 Summary of Chapter Four

This chapter examined the impact of increased trainee enrolment on the quality of training in public TVET institutions in Uasin Gishu County, focusing on collaboration with industry, teaching strategies, and infrastructure utilization. The findings reveal that industrial attachment remains the dominant form of collaboration (acknowledged by 32.9% of trainees and 55.2% of trainers), yet over two-thirds of respondents perceive such partnerships as ineffective due to institutional capacity limitations, industries' inability to absorb growing numbers, and chronic resource shortages. These trends mirror observations by the World Bank (2023) and UNESCO-UNEVOC (2023), which note that while industry

linkages are vital for enhancing training relevance, they are often undermined by insufficient placement opportunities and variability in quality. In response to overcrowding, institutions employ strategies such as online learning, class splitting, and group work, though the shift toward teacher-centered approaches reported by over 90% of trainers limits hands-on, learner-focused engagement, echoing Wanjala and Too's (2020) findings on the pedagogical effects of large class sizes in vocational education. While integration of technology has improved digital literacy and partially aligned training with workforce needs, infrastructure and internet gaps hinder consistent implementation (Mureithi, 2019). Moreover, 69.3% of trainees and 91.4% of trainers report congested classrooms, workshops, and laboratories, with some facilities underutilized, indicating inefficiencies in resource allocation. Government policy, particularly on enrolment regulation, funding, and industry incentives, emerges as both a facilitator and constraint, with uneven implementation across institutions further exacerbating disparities. Overall, the evidence underscores that without proportional investment in infrastructure, staff capacity, and diversified industry partnerships, rising enrolment risks eroding the competency-based training model that underpins TVET quality in Kenya.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary of specific, brief and precise answer to the research questions of this study. It also provides the conclusions for the study as well as recommendations and suggestions for further study. These are hereunder presented as follows:

5.2 Summary of Study Findings

This section covers the summary of the findings established in this study which are presented as per each objective as follows:

5.2.1 To determine the influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions in Uasin Gishu County, Kenya

The analysis of data on the influence of increased trainees' enrolment on collaboration between industries and public TVET institutions in Uasin Gishu County reveals several critical findings. The most prevalent form of collaboration identified was industrial attachment, with 32.9% of trainees and 55.2% of trainers acknowledging it as a key practice. Other forms such as workshops and seminars (20.3%), research and innovation (18.7%), and educational trips (16.4%) were less emphasized, indicating a limited scope of collaboration. However, a majority of respondents 65.9% of trainees and 67.2% of trainers believed collaborations between TVET Institutions and Industries were ineffective. This was largely attributed to two major challenges: first, the inability of industries to

accommodate the growing number of trainees seeking attachment; and second, the institutional constraints in managing both classroom-based and industry-based training due to stretched resources. The key challenges Institutions face while Engaging in Collaborations with Industries due to increased enrollment cited included resource constraints (reported by 32.9% of trainees and 55.2% of trainers), technological disparities, and limited time for engaging in meaningful industry partnerships. Despite this, some institutions have adopted sustainability strategies such as establishing clear collaboration goals and allocating more resources, though these efforts are not uniformly applied. Furthermore, the role of government policy was highlighted, particularly the lack of control over enrolment numbers and inadequate funding, both of which were seen to hinder effective collaboration and quality training. Evaluation mechanisms such as logbook marking and limited assessments during industrial attachment were in place, but were insufficient to guarantee robust quality assurance, especially in light of increased enrolment.

Based on these findings, the answer to the first research question how increased trainees' enrolment influences collaboration between industries and TVET institutions and its effect on quality training is clear: increased enrolment negatively affects the quality of training by straining institutional capacity to train large numbers and weakening collaboration with industries. While institutions and industries recognize the value of working together, the sheer number of trainees has overwhelmed existing systems, resulting in ineffective or limited partnerships. Most institutions cannot guarantee placements for all students, nor can they assess trainees frequently enough to ensure quality outcomes. Additionally, inadequate infrastructure, funding, and inconsistent policy support have further hindered

collaborative efforts. Although some progress has been made through strategies such as dual training, expert involvement, and joint initiatives like equipment donations and internship agreements, these efforts are not yet sufficient to fully counterbalance the challenges posed by rising enrolment. As a result, the quality of training in public TVET institutions is compromised, with students receiving inconsistent exposure to practical industry experiences an essential element in vocational education.

5.2.2 To evaluate the influence of teaching strategies being utilized amid increased enrolment on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

The data collected from trainers, trainees, and principals shows that increased enrolment in public TVET institutions in Uasin Gishu County has significantly influenced teaching strategies, affecting the overall quality of training. The most commonly employed strategies include online learning (used by 70.7% of trainers and 43.1% of trainees), group work (67.2% trainers; 21.8% trainees), and splitting classes (81.0% trainers; 12.6% trainees). While these methods are seen as necessary adaptations to manage large class sizes, their effectiveness is debated. A majority of respondents 59.5% of trainees and 74.1% of trainers believe that these strategies are sufficiently effective in ensuring quality training amid increased enrolment. However, 28.7% of trainees and 19.0% of trainers felt that the teaching strategies were not sufficient, indicating potential challenges in implementation. Key challenges emerged in the implementation of these strategies. Small classrooms (reported by 53.9% of trainees and 55.2% of trainers), insufficient resources (35.3% trainees; 65.5% trainers), and limited time for individualized attention were major obstacles.

Further analysis showed that large class sizes hinder practical training, increase absenteeism (reported by over 54% of trainees and trainers), and lead to a reliance on teacher-centered methods. Notably, 91.4% of trainers and 68% of trainees confirmed that increased enrolment has caused a shift away from learner-centered teaching. Moreover, 53.9% of trainees and 55.2% of trainers agreed that lecture methods reduce skill acquisition. Although some efforts like field trips and group work aim to align training with industry needs, these are inconsistently implemented, and trainees do not perceive them as effective as trainers do. Support systems such as professional development and online class creation are present but not adequate, with 63.2% of trainees and 74.1% of trainers recommending improved internet infrastructure and deploying more trainers as critical improvements.

The findings reveal that increased enrolment has compelled public TVET institutions in Uasin Gishu County to shift predominantly toward teacher-centered strategies such as lecture-based teaching, due to the challenges of managing large classes. This shift, while necessary for handling the volume of students, has negatively impacted personalized instruction and hands-on skill acquisition, which are critical for technical and vocational education. Although some institutions have introduced group work, online learning, and class splitting as alternative strategies, these are often limited by resource shortages, overcrowded classrooms, and insufficient internet connectivity**.**

Both trainers and trainees acknowledge that these strategies are partially effective**,** but not sufficient to maintain high training standards. The mismatch in perceptions where trainers are more optimistic about the effectiveness of these methods than trainees suggests gaps in delivery and engagement. Moreover, support systems, though present, are not adequately

equipped to handle the demands of increased enrolment, resulting in strained trainer-trainee ratios and limited time for feedback and mentoring. As a result, the quality of training suffers, especially in terms of practical competency development and alignment with industry needs**.** Therefore, while teaching strategies have been adapted to manage rising enrolment, without significant investment in infrastructure, human resources, and digital capacity, the quality of training in TVET institutions remains at risk.

The data reveals that increased enrolment in public TVET institutions had a markedly negative impact on teaching strategies, ultimately compromising the quality of training. To cope with large class sizes, institutions have shifted learners centered to teacher-centered approaches such as lectures, which, while efficient for managing numbers it limits hands-on skill acquisition and individualized instruction which are key components of technical training. Although alternative strategies like online learning, group work, and class splitting have been introduced, their effectiveness is hindered by overcrowded classrooms, inadequate resources, and poor internet connectivity. This has led to inconsistent implementation and reduced learner engagement, with trainees reporting these methods as less effective than trainers perceive them to be. Moreover, support systems such as professional development and online platforms are insufficiently developed, resulting in limited mentorship and feedback opportunities. The cumulative effect is a decline in practical training quality, reduced alignment with industry standards, and a growing disconnect between teaching strategies and trainee needs.

5.2.3 To find out the impact of infrastructure utilization, under conditions of increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya

The analysis of data from trainees, trainers, and principals reveals that increased enrolment in public TVET institutions in Uasin Gishu County has placed considerable pressure on the existing infrastructure, significantly affecting the quality of training. A majority of trainees (69.3%) and trainers (91.4%) reported that classrooms, workshops, and laboratories are congested, making the learning environment overcrowded and straining available resources. This congestion leads to class absenteeism (reported by 84.8% of trainees and 56.9% of trainers), limited individualized attention (69.8% trainees, 63.8% trainers), and difficulty accessing practical facilities (52.6% trainees, 50% trainers). These conditions reduce hands-on learning time and the quality of practical sessions, which are essential in vocational training. The study further revealed that overcrowding has forced institutions to adopt short-term coping strategies such as erecting tents (80.5% trainees, 81.0% trainers), combining streams, scheduling optimization, and introducing online classes. However, challenges such as poor internet connectivity (87.3% trainees, 62.1% trainers), insufficient seats (79.7% trainees), and small classroom sizes (67.9% trainees) remain persistent. Furthermore, most trainees (93.6%) and trainers (96.6%) reported that due to equipment and space limitations, practical sessions are often replaced with theoretical instruction, weakening the hands-on skills acquisition TVET aims to deliver knowledge and skills.

On infrastructure condition, 93.5% of trainees and 53.4% of trainers cited insufficient reference materials, while 86.2% of trainees and 48.3% of trainers noted malfunctioning equipment. The infrastructure was described as minimal or poorly accessible by the majority (66.2% of trainees and 39.7% of trainers). Both groups emphasized that renovation and expansion would significantly improve training quality by increasing access to equipment, learning space, and functionality 77.3% of trainees and 70.7% of trainers agreed it would enhance practical learning.

Principals also confirmed that increased enrolment has led to limited time in workshops, insufficient equipment, and a shift from practical to theoretical instruction due to high student-to-machine ratios. They acknowledged that the strain on infrastructure has made it difficult to ensure skill acquisition, and while some departments are better equipped than others, overall capacity remains inadequate.

The findings indicate that the utilization of existing infrastructure under conditions of increased enrolment has negatively impacted the standard of training in public TVET institutions. Overcrowding in classrooms, workshops, and libraries has reduced students' access to learning facilities and individual attention from trainers. The limited time available for practical sessions due to high trainee numbers and equipment shortages has forced many institutions to deliver practical components theoretically, undermining skill acquisition, which is central to TVET.

While institutions have adopted strategies such as erecting temporary structures, online learning, and class splitting to manage the pressure, these measures are not sufficient. Poor internet connectivity and inadequate digital resources further hinder the effectiveness of

online instruction. Additionally, outdated or malfunctioning infrastructure, lack of reference materials, and unequal access to training tools have compounded the challenges.

The study also revealed disparities between departments and institutions in infrastructure availability, leading to inconsistent training experiences. The cumulative effect of these challenges is a decline in the quality of training delivered, as evidenced by the majority of trainers and trainees who disagreed that increased enrolment has led to improved training quality. Thus, unless matched by proportional investment in infrastructure development, renovation, and maintenance, rising enrolment will continue to erode the standard of training in TVET institutions.

5.2.4 To evaluate the effect of trainers' performance, amid of increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

The findings from the study clearly demonstrate that increased enrolment in public TVET institutions in Uasin Gishu County has significantly affected trainers' performance, leading to a decline in the quality of training. Results revealed that student-to-trainer ratios were as high as 1:65, far exceeding the recommended 1:20 ratio, making it difficult for trainers to provide individualized attention and practical support essential in vocational education. A majority of trainers (96.6%) reported being overworked, with 87.9% stating that preparation for classes and record-keeping had become more time-consuming, directly impacting their ability to deliver effective training. This was echoed by 84.5% who noted that assessing trainees had become increasingly difficult. Similarly, trainees recognized the impact, with 68.5% acknowledging that assessments were no longer as effective, and 56.7% indicating challenges in syllabus coverage. The study further found that teaching

approaches had shifted from interactive to teacher-centered methods due to large class sizes, limiting the depth of learning and practical engagement. Institutions attempted to cope through strategies such as constructing additional classrooms, using tents, increasing procurement of resources, and integrating online classes; however, these efforts were often inadequate or temporary. While motivational programs like mentorship, scholarships, and educational trips were positively received, they could not fully mitigate the challenges posed by overcrowding and high workloads. Principals confirmed that increased enrolment had led to incomplete syllabus coverage particularly in practical sessions and a reduction in the quality and frequency of formative assessments, ultimately affecting trainees' performance in KNEC exams. Overall, the study concludes that the performance of trainers has been negatively impacted by increased enrolment, and this has significantly compromised the quality of training. Addressing these issues requires urgent policy interventions, increased staffing, improved infrastructure, and better support systems to ensure that quality is not sacrificed amid expanding access to TVET education.

This study found out that as a result of increased enrolment, trainers' performance had been significantly affected in a negative way. Increased enrolment, having paused challenges to trainers in their general capacity of working effectively, affected their efforts of maintaining quality of education. This is because due to the increased enrolment, the trainers had excessive workload which caused a shift towards exam-focused teaching, ineffective pedagogical strategies, reduced continuous assessments, insufficient preparation time, and reliance on self-learning. These coping strategies negatively influenced the quality of training.

5.3 Conclusion

This study established that increased enrolment in public TVET institutions in Uasin Gishu County has significant implications for collaboration with industry, teaching strategies, infrastructure utilization, and trainer performance. The findings indicate that while enrolment growth reflects the success of government efforts to expand access, it also presents opportunities and challenges that require strategic responses. Higher numbers of trainees have strengthened the demand for stronger industry partnerships, diversified teaching approaches, and optimal use of infrastructure. They have also highlighted the importance of supporting trainers through professional development and manageable workloads. Addressing these areas will enable TVET institutions to sustain and enhance the quality of training, ensuring that the growing trainee population is equipped with the skills and competencies required for the job market. With well-targeted policies, adequate resource allocation, and innovative practices, increased enrolment can become a driver for continuous improvement in training quality and industry relevance.

5.4 Recommendations

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

i. TVET institutions should seek ties with the industries amid increased enrolment to ensure that they exploit the value of the partnerships to the maximum
ii. The government should increase capitation to TVET institutions to ensure that they have more resources and enough infrastructure to ensure that the quality of training remains high despite the pressures of increased student numbers.

iii. The institutions also need to come up with policies that will encourage more collaborations between TVET institutions and industries to invigorate the institution-industry ties. This will help to ensure that TVET institutions obtain more benefits from the industries as they prepare trainees who match the needs of the industry.

iv. TVET institutions should develop professional development programs that are tailored towards ensuring that trainers are adequately capacitated on the strategies of effectively handling the increased number of trainees.

5.5 Suggestions for Further Study

Despite the fact that this study has covered an in-depth consideration of the influence of various factors, under increased enrolment, on the quality of training, there is still more to be studied in this regard. Further study is recommended under the following headings:

i. Strategies of maintaining learner-centered approaches under the conditions of increased enrolment.

ii. Factors influencing effective trainers' performance under the conditions of increased enrolment.

iii. An analysis of sustainable intervention measures of maintaining quality training amid increased enrolment.

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APPENDICES

APPPENDIX I: INTRODUCTION LETTER

Dear Respondent,

I am Cheruiyot Irine Chepkurui, a post-graduate student at the University of Eldoret. I am currently pursuing a Master of Education Degree in Technology Education (Building and Construction Technology). I am conducting academic research on "Effect of increased enrolment on the quality of training in public technical and vocational education and training in Uasin Gishu County, Kenya"

The Ministry of Education, State Department for Technical and Vocational Training will draw on the research findings to build up policy that will guarantee proper enrolment in TVET institutions that will promote skills and facilitate the achievement of industrial development as postulated by the Government big four agenda and vision 2030 development blueprint.

I hereby kindly request for your participation in this research. Kindly respond to the questions appropriately and to the best of your knowledge. The information you will provide will be held confidential.

The research is purely academic and therefore no monetary reward will be attached to participation.

Yours sincerely,

Cheruiyot Irine Chepkurui. (SEDU/TED/M/021/21)

APPENDIX II: CONSENT FORM

I have read and understood the introductory letter above. I accept to participate as a respondent in this study.

Signature: .....Date: .....

APPENDIX III: QUESTIONNAIRE FOR TRAINEES AND TRAINERS

SECTION A: PERSONAL DATA

Please tick your status: trainer ( ) trainee ( )

If you are a trainee go to SECTION A.1, if a trainer go to SECTION A.2

SECTION A.1: FOR TRAINEES

1. What is your gender? a) Male [ ] b) Female [ ]

2. In which bracket does your age lie?

15-19 years [ ] 25-29 years [ ]

20-24 years [ ] 30 years and above [ ]

3. What is your year of study?

First year [ ]

Second year [ ]

Third year [ ]

4. Which kind of course are you pursuing?

Diploma [ ]

Craft [ ]

Artisan [ ]

SECTION A.2: FOR TRAINERS.

5. What is your gender? a) Male [ ] b) Female [ ]

6. In which bracket does your age lie?

20-29 years [ ] 30-39 years [ ]

40-49 years [ ] 50 years and above [ ]

7. For how many years have you been a trainer of TVET institution? (Mark the range of years that suits you)

0 - 4 years [ ]

5 - 9 years [ ]

10 - 14 years [ ]

15 years and above [ ]

8. Have you ever assessed students on industrial attachment?

Yes [ ]

No [ ]

SECTION B: To determine the influence of increased trainees' enrolment on collaboration between industries and TVET institutions for quality training in public TVET institutions in Uasin Gishu County, Kenya.

PART 1.

1. What specific forms of collaboration does your institution have with industries in Uasin Gishu County and beyond to ensure quality training of trainees with this increased enrolment?

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2. Do you find the TVET collaborative initiatives effective in ensuring quality training of trainees with this increased enrolment? Yes [ ] No[ ] Don't know [ ] Briefly explain.

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3. What are the key challenges you have encountered when collaborating with the industries to maintain quality training of trainees amid increased enrolment?

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4. What strategies are being employed by the institution to ensure the sustainability of collaborative efforts during these periods of increased enrolment to ensure quality training of trainees?

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5. What role does government policy play in facilitating or hindering collaboration between TVET institutions and industries to maintain quality training of trainees during increased enrolment?

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6. Are there any joint efforts that exist between your institution and industries that are aimed at enabling this institution to adapt to increased enrolment while maintaining training quality? Yes [ ] No [ ] Don't Know [ ] briefly explain.

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7. How do your institution measure and evaluate the outcomes of collaborative efforts with industries to ensure the quality of training of trainees is maintained during these periods of increased enrolment?

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PART 2.

Please take some time to rate the following statements in the table below. The initials on the ratings are as follows:

SD - Strongly Disagree, Disagree, N - Neutral, A - Agree, SA - Strongly Agree

S/NO	Statement	SD	D	N	A	SA
1.	Our institution is partnering with many industries. This has enhanced the quality of training of trainees during these conditions of increased enrolment of trainees.					

2.	With increased enrolment, the quality of training has been negatively affected because our institution is unable to place all trainees in industries for attachment.					
3	Increased enrolment has necessitated our institution to hire experts from various industries who visit to offer expertise in various trades to enhance quality of training.					
4	Despite increased enrolment, our institution ensures that all trainees on attachment are assessed at least two times within their attachment period and this has maintained quality of training.					
5	Even with increased enrolment, our institution provides quality training of trainees by collaborating with more industries.					
6	Due to increased enrolment, our institution has lost its grip with industries. Therefore,					

	trainees find attachment industries for themselves.					

SECTION C: To evaluate the influence of teaching strategies being utilized amid increased enrolment on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

PART 1.

1. Which teaching strategies are currently being employed by the institution to accommodate increased enrolment?

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2. Are the teaching strategies sufficiently effective in ensuring quality training of trainees during these periods of increased enrolment? Yes [ ] No[ ] Don't know [ ] Briefly explain

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3. What are the key challenges faced by instructors in implementing teaching strategies to maintain the quality training of trainees during periods of increased enrolment?

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4. How do variations in class sizes during these periods of increased enrolment impact the implementation and effectiveness of different teaching strategies?

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5. To what extent do teaching strategies utilized in this institution incorporate technology and innovative approaches to address challenges associated with increased enrolment while maintaining quality training of trainees? Small extent [ ] Moderate [ ] Great [ ] Briefly explain

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6. What role do support systems, such as professional development opportunities and teaching resources, play in enabling instructors to effectively implement teaching strategies during periods of increased enrolment?

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7. How do trainee's outcomes, such as academic performance and skill acquisition, vary based on the teaching strategies employed during these time of increased enrolment in Uasin Gishu County?

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8. How do the teaching strategies being employed align with industry demands and workforce needs during periods of increased enrolment?

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9. In your view, what are the best practices and recommendations for optimizing teaching strategies to ensure the quality of training of trainees is maintained despite increased enrolment pressures?

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PART 2.

How teaching strategy under conditions of increased enrolment affects quality training of trainees Please take some time to rate the following statements in the table below. The initials on the ratings are as follows:

SD - Strongly Disagree, Disagree, N - Neutral, A - Agree, SA - Strongly Agree

S/NO	Statement	SD	D	N	A	SA
1	Increased enrolment has caused trainers to use teacher-centered approaches of teaching.					
2	Trainers have split trainees into manageable groups to manage the increased enrolment and by doing this, more inclusive learning has been enhanced to ensure quality training.					

4	Despite increased numbers of trainees, trainers have focused on attending to trainees' differentiated needs to ensure that every trainee is well equipped with necessary skills.					
5	Teaching strategies have remained unchanged even with increased enrolment and therefore there is insignificant decrease in quality training of trainees.					
6	Overwhelming numbers of trainees have made it hard for trainers to handle differentiated learning needs of trainees					
7.	If trainee's enrolment decreases, there will be better training as trainers will engage trainees in using learner-based approaches to ensure that trainees acquire more knowledge and skills.					

SECTION D: To determine the impact of infrastructure utilization, under conditions of increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.

PART 1.

1. What is the current capacity utilization of infrastructure (e.g., classrooms, laboratories, workshops) in your institution during this period of increased enrolment?

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2. How do variations in infrastructure utilization amid increased enrolment impact the learning environment and overall quality of training?

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3. What strategies are being employed by your institution to optimize the utilization of existing infrastructure during periods of increased enrolment while maintaining quality training of trainees?

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4. What challenges does the institution face in effectively utilizing existing infrastructure to accommodate increased enrolment without compromising quality training of trainees?

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5. How does the condition and adequacy of existing infrastructure in your institution influence the ability to provide quality training during periods of increased enrolment?

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6. To what extent do infrastructure limitations impact the delivery of practical training components (e.g., hands-on exercises, experiments) in your institution during periods of increased enrolment?

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7. What measures are being taken by your institution to ensure the safety and compliance of trainees and staff when maximizing the utilization of existing infrastructure during periods of increased enrolment?

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8. In your view, how do you rate the adequacy and accessibility of existing infrastructure in your institution during periods of increased enrolment of trainees?

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9. What role does infrastructure expansion or renovation play in mitigating the challenges associated with increased enrolment and maintaining the quality of training of trainees in your institution?

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10. What are the best practices and recommendations for optimizing the utilization of existing infrastructure in your institution to ensure the quality of training is upheld during periods of increased enrolment?

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PART 2.

Please take some time to rate the following statements in the table below. The initials on the ratings are as follows:

SD - Strongly Disagree, Disagree, N - Neutral, A - Agree, SA - Strongly Agree

S/NO	Statement	SD	D	N	A	SA
1	Increased enrolment has limit access of the trainees and trainers to the library.					
2	The time allocated to trainees for use of workshop facilities has reduced due to increased enrolment of trainees.					

3	Increased enrolment of trainees has led to acquisition of better training equipment and tools for training.					
4	Due to increased enrolment, our institution has expanded workshops, laboratories, and library and internet hotspots to enable more access to the facilities and therefore the quality of training of trainees has been improved.					
5	Because of increased enrolment, trainees are rarely taken for practical sessions to acquire practical skills using institutional facilities and this has affected the quality of training.					
6	Due to increased enrolment, trainers have had it hard to expose trainees to training facilities available and this has reduced the quality of our training.					
7	Increased enrolment has caused scrambling for the available training facilities and this has reduced exposure to the facilities causing poor the quality of my training.					

SECTION E; **To evaluate the effect of trainers' performance, amid increased enrolment, on the quality of training in public TVET institutions in Uasin Gishu County, Kenya.**

PART 1.

1. In your view, what is the current approximate student-to-trainer ratio in your institution, and how has it changed with increased enrolment of trainees?

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2. How do trainers perceive the impact of increased enrolment on workload, time allocation, and ability to effectively deliver quality training of trainees?

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3. What specific challenges do trainers/trainees encounter in maintaining the quality of training amid increased enrolment of trainees?

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4. How do variations in class sizes and trainees demographics during periods of increased enrolment affect trainer's pedagogical approaches and instructional effectiveness?

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5. In which ways does your institution provide resources to satisfy the demands of increased enrolment of trainees and maintain quality training?

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6. How do trainers adapt teaching methods, assessment strategies, and classroom management techniques to accommodate increased enrolment while ensuring quality training?

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7. Are there any efforts that your institution has put in place to enhance motivation, job satisfaction, and overall performance in delivering quality training of trainees amid increased enrolment?

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……

8. a) Are there any institutional policies and practices in your institution that are intended to address the challenges associated with increased enrolment of trainees and supporting quality training delivery? Yes[ ] No[ ] Don't know [ ]

b) If yes, how do you find the effectiveness of the established institutional policies and practices in addressing the challenges associated with increased enrolment and supporting quality training of trainee's delivery?

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9. a)What strategies does your institution employ to engage and support diverse trainees populations during periods of increased enrolment

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b) How do these strategies impact training quality of trainees?

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PART 2.

Please take some time to rate the following statements in the table below. The initials on the ratings are as follows:

SD - Strongly Disagree, Disagree, N - Neutral, A - Agree, SA - Strongly Agree Please share your comments on how increased enrolment of trainee's influence:

S/NO	Statement	SD	D	N	A	SA
1	Due to increased enrolment, quality of training has decreased as trainers have been assigned more classes which has made it hard for them to clear syllabus in good time because they are so much occupied.					
2	Increased enrolment has caused increased workload to trainers which has made learning to be only focused on enabling trainees to do KNEC exams and this has adversely affected the quality of training.					
3	Because of increased enrolment of trainees, trainers' pedagogical strategies have not been inclusive and effective in equipping trainees and therefore quality of training has decreased.					

4	Increased numbers have made trainers to give trainees less assignments and CATs and this affect quality of training of trainees.					
5	Due to overwhelming numbers of trainees, trainers have lacked enough time to prepare trainees for exams and this has caused poor performance in KNEC exams.					
6	Because of trainees' increased enrolment, trainees have had to learn some things on their own because trainers are much occupied and this has negatively influenced the quality training of trainees.					

APPENDIX IV: INTERVIEW SCHEDULE FOR PRINCIPALS

SECTION A: PERSONAL DATA

1. Gender of the personnel. Male ( ) Female ( )

2. How old are you?

3. For how many years have you worked in TVET institutions in the following capacities:

   a. Ordinary trainer?

   b. Head of Department?

   c. Dean of students?

   d. Industrial Liaison Officer?

   e. Deputy Principal (Administration/Academics)?

   f. Principal?

   g. Any other administrative position… (Specify) ……..

4. In general terms, how has the quality of training varied with the number of trainees enrolled (from your experience)?

SECTION A: TO DETERMINE THE INFLUENCE OF INCREASED TRAINEES' ENROLMENT ON COLLABORATION BETWEEN INDUSTRIES AND TVET INSTITUTIONS FOR QUALITY TRAINING IN PUBLIC TVET INSTITUTIONS IN UASIN GISHU COUNTY, KENYA.

How has increased enrolment in your institution influenced collaboration of various departments in your institution with other relevant industries?

1. Due to increased enrolment, has your institution increased partnerships with more industries to maintain the quality of training?

2. With this increased enrolment, does the office in charge of attachment to look for industrial attachment places for all students to ensure quality training?

3. Amid the current increased enrolment, what efforts have you put in place to expand institutional linkages with relevant industries to enhance quality of the training of the programs bring offered?

4. Even with this increased enrolment, have you engaged enough experts from various industries to mentor your trainees to ensure holistic empowerment in their future career?

5. With this increased enrolment, how many times (on average) are all students on attachment are assessed? ……Is it enough in terms of ensuring quality training?

SECTION C: TO EVALUATE THE INFLUENCE OF TEACHING STRATEGIES BEING UTILIZED AMID INCREASED ENROLMENT ON THE QUALITY OF TRAINING IN PUBLIC TVET INSTITUTIONS IN UASIN GISHU COUNTY, KENYA.

1. With increased enrolment of trainees, have trainers maintained using learner-centered approached to ensure quality training?

1. Due to increased enrolment, have you directed trainers to split trainees into manageable groups to ensure quality training?
2. Has the institution provided commensurate financial, material and infrastructural support to maintain quality education and training?
3. With increased enrolment, has this institution maintained a good trainer-trainee ratio to maintain quality training?
4. Due to increased enrolment of trainees, which learner-based training strategies have been put in place to ensure that quality of training is maintained?
5. Following increased enrolment, has this institution expanded workshops, library, laboratories, and network/data access areas to maintain improved the quality of training.
6. Have these overwhelming numbers challenged trainers in terms of their ability to handle differentiated learning needs to maintain quality of training?

SECTION D: TO DETERMINE THE IMPACT OF INFRASTRUCTURE UTILIZATION, UNDER CONDITIONS OF INCREASED ENROLMENT, ON THE QUALITY OF TRAINING IN PUBLIC TVET INSTITUTIONS IN UASIN GISHU COUNTY, KENYA

1. Does increased enrolment interfere with trainees' access and utilization of library and other institutional resource centers? How?

2. Are trainees allowed enough time to use institutional workshop and laboratories? If so, how is this ensured?

3. With the increased enrolment, has this institution acquired sufficient training equipment, reference materials, tools, etc. To maintain quality training of training in all programs offered?

4. Has increased enrolment affected acquisition practical skills using institutional facilities? How?

5. With the increased enrolment, are trainers able to maximally expose trainees to training facilities available to their area of specialization?

SECTION E: TO EVALUATE THE EFFECT OF TRAINERS' PERFORMANCE, AMID INCREASED ENROLMENT, ON THE QUALITY OF TRAINING IN PUBLIC TVET INSTITUTIONS IN UASIN GISHU COUNTY, KENYA.

1. With this increased enrolment, are trainers able to manage their classes while maintaining quality of training?

2. With the increased enrolment, how many hours (on average) does each trainer have per week?

3. Does this workload allow the trainers to complete syllabus on time?

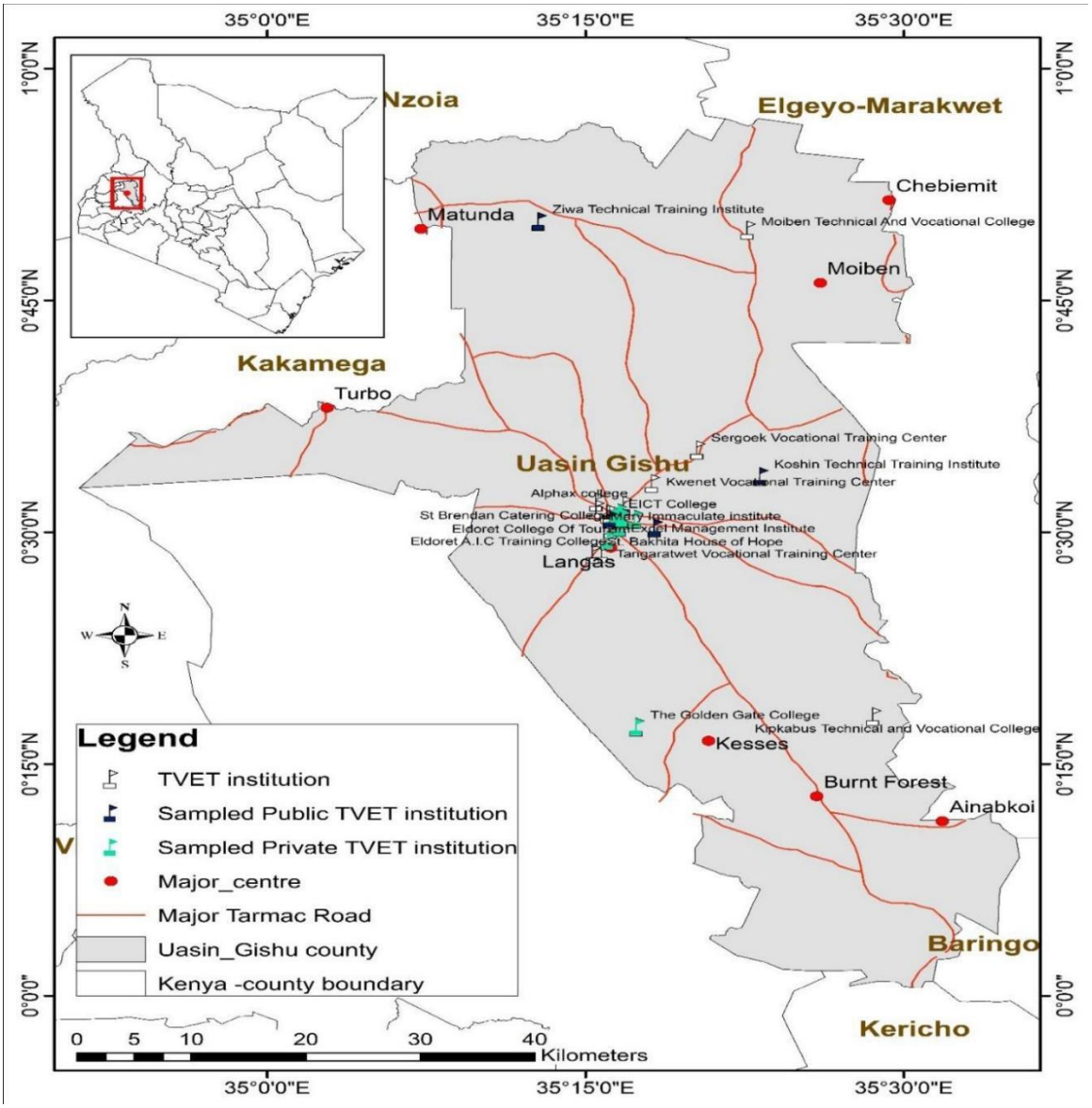
4. Does the workload allow the trainers to engage the learners maximally to guarantee quality training? Due to increased enrolment, quality of training has decreased as trainers have had more workload that has affected timely coverage of syllabus.

5. Has increased enrolment affected implementation of a balanced coverage (for theory and practical aspects) of syllabus? How?

6. Due to increased number of trainees, has strategies of administering formative assessments by the trainers remained indifferent? How?

7. Has increased enrolment of trainees affected the performance of trainees in KNEC exams? Explain.

APPENDIX IV: MAP OF THE STUDY AREA



APPENDIX V: RESEARCH WORK PLAN

Activities/ Critical stages	**Month**												
	Jan 22	Jun 22	Dec 22	Dec 22	Jan 23	**Jan 23**	Jan 25	**Feb 25**	**JULY** 25	**JULY** 25	**AUG** 25	**AUG** 25	**AUG** 25
Developing the research idea													
Developing research proposal													
Developing research tools													
Proposal presentation													
Reviewing proposal													
Applying for consents from authorities													

Talking with the representatives in research sites													
Piloting and validating tools													
Reviewing tools													
Training research assistants													
Selecting the sample													
Data collection													
Data verification, coding and entry													

Data analysis													
Thesis report writing & proof reading													
Thesis presentation													
Reviewing thesis & submission													
Information to the respondents & authorities													

APPENDIX VI: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 673054

Date of Issue: 06/February/2024

RESEARCH LICENSE

This is to Certify that Miss.. IRINE CHEPKURUI CHERUIYOT of University of Eldoret, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Uasin-Gishu on the topic: EFFECTS OF INCREASED ENROLLMENT ON THE QUALITY OF TRAINING IN PUBLIC TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS IN UASIN GISHU COUNTY,KENYA for the period ending : 06/February/2025.

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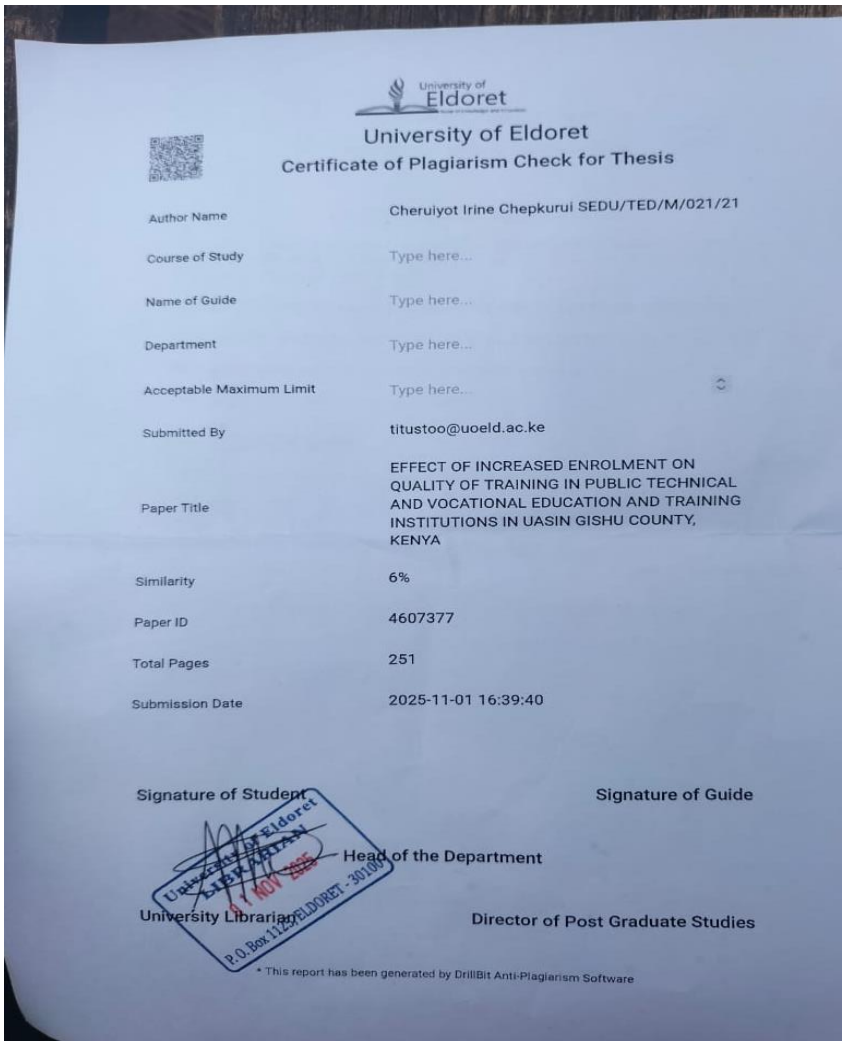
See overleaf for conditions

APPENDIX VII: SIMILARITY REPORT



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Certificate of Plagiarism Check for Thesis

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