STRATEGIES FOR ENHANCING CONTINUOUS PROFESSIONAL DEVELOPMENT FOR TVET MASTER TRAINERS IN PUBLIC INSTRUCTOR TRAINING COLLEGES IN UGANDA

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DEPARTMENT OF TECHNOLOGY EDUCATION

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DECLARATION

Declaration by the Student

This thesis, titled “Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Instructor Training Institutions in Uganda”, is my original work, has never been submitted for any academic award in any institution, and shall not be reproduced in part or any format without prior written permission from the author and the University of Eldoret.

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DEDICATION

This thesis is hereby dedicated to my beloved wife, Naigembe Lydia Sempala (Mrs.), for the patience and support she has tirelessly extended to me during my university studies; my son, Musoke Male Victor; and my daughters, Namale Noella Divine, Nakamatte Darlene Theresa, and Nansereko Flora Purity; their support cannot go unrecognized.

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Despite the contributions of all the above, I am entirely responsible for all the outcomes of this research study.

ABSTRACT

Continuous Professional Development (CPD) is critical for improving the competence and effectiveness of Technical and Vocational Education and Training (TVET) Trainers of Trainers (ToTs) in Uganda. Yet, CPD implementation remains fragmented, inconsistent, and poorly institutionalized. This study examined strategies for enhancing CPD for TVET Master Trainers in selected public instructor training colleges, namely the National Instructors' College Abilonino (NICA), Nakawa Vocational Training College, and Jinja Vocational Training Institute. The study was guided by Experiential Learning Theory (ELT) developed by David Kolb (1984), which emphasizes learning through experience, reflection, conceptualization, and experimentation. It focused on three objectives: (1) to assess current CPD practices in instructor training institutions, (2) to examine strategies used in identifying the training needs of TVET trainers, and (3) to determine adoptable innovative CPD strategies that can improve the competences of Trainers of Trainers in Uganda. The study was guided by a convergent parallel mixed-methods research design within a descriptive framework. Quantitative data was collected from 172 respondents using a structure questionnaire, while qualitative data was obtained from key informant interviews, focus group discussions, and document reviews. Purposive and stratified random sampling techniques were used in selecting participants. SPSS version 27 was used to analyse quantitative data, while qualitative data was analysed thematically. The findings revealed that current CPD practices are inconsistently implemented, lack national coordination, and are weakly linked to industrial needs and trends. The results showed that current CPD practices explained 21.1% (R^2=0.211) of the variation in trainers' competences. Training needs identification strategies were mainly based on informal appraisals and consultations, explaining 23.0% (R2=0.230) of variance in competence. Innovative CPD strategies such as mentorship, peer learning, and digital-based training showed stronger predictive power, explaining 30.3% (R^2 = 0.303) of the variance in competence. However, institutional challenges such as limited digital infrastructure, weak management support, and inadequate funding constrained their effectiveness. The study concludes that the absence of a coherent national CPD framework and the weak alignment between training, industry, and institutional systems undermine the professional competence of TVET Master Trainers. It recommends the establishment of a National CPD Framework under the Ministry of Education and Sports, investment in digital and mobile learning infrastructure, creation of a pedagogical laboratory at NICA, integration of structured mentorship and student feedback systems, and adoption of rigorous monitoring and evaluation mechanisms. Strengthening CPD through structured, innovative, and context-driven strategies informed by experiential learning can significantly enhance the competence, motivation, and performance of TVET Master Trainers, thereby improving the overall quality and sustainability of Uganda's TVET sector.

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LIST OF ABBREVIATIONS/ACRONYMS

BTVET:	Business, Technical and Vocational Education and Training
CESA:	Continental Education Strategy for Africa
CI:	Confidence Interval
CUDBAS:	Curriculum Development Based on Ability Structure
CPD:	Continuous Professional Development
EDPs:	Education Development Partners
EFA:	Exploratory Factor Analysis
ELT:	Experiential Learning Theory
FGDs:	Focus Group Discussions
FUE:	Federation of Uganda Employers
GDP:	Gross Domestic Product
GUREC:	Gulu University Research Ethics Committee
HTVET:	Higher Technical and Vocational Education and Training
ICT:	Information and Communication Technology
ILO:	International Labour Organization
KOICA:	Korea International Cooperation Agency
LIAs:	Lecturer Industrial Attachments
LLCI:	Lower Limit of the Confidence Interval
LMS:	Learning Management System
MoES:	Ministry of Education and Sports
MOOCs:	Massive Open Online Courses
NDP IV:	Fourth National Development Plan
NICA:	National Instructors' College Abilonino
NOSS:	National Occupational Skills Standards
OECD:	Organisation for Economic Co-operation and Development
OER:	Open Educational Resources
PGPs:	Personal Growth Plans
SDGs:	Sustainable Development Goals
SPSS:	Statistical Package for the Social Sciences
TDM:	Teacher Development and Management
TMIS:	Teacher Management Information System
TNA:	Training Needs Assessment
ToTs:	Master trainers
TVET:	Technical and Vocational Education and Training
UBTEB:	Uganda Business and Technical Examinations Board
UVTAB:	Uganda Vocational Technical Assessment Board
ULCI:	Upper Limit of the Confidence Interval
UMA:	Uganda Manufacturers Association
UNCST:	Uganda National Council for Science and Technology
USSIA:	Uganda Small Scale Industries Association
UVQF:	Uganda Vocational Qualifications Framework

UNESCO: United Nations Education Scientific Cultural Organisation
UNESCO-UNEVOC: Internal Centre for Technical Vocational Education and Training
WIL: Work-Integrated Learning

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter presents the background of the study, the statement of the problem, the purpose of the study, the objectives of the study, the research questions, and the significance of the study, the justification of the study, the scope of the study, the assumptions of the study, the theoretical and conceptual framework, and the limitations of the study.

1.2 Background of the Study

Continuous Professional Development (CPD) for Technical and Vocational Education and Training (TVET) master trainers in Uganda remains weak, fragmented, and largely uncoordinated. Despite being the backbone of skills development, most TVET master trainers in public instructor training institutions lack structured opportunities for ongoing professional growth (Mutebi & Ferej, 2023). CPD activities are irregular, often donor-driven, and not guided by a national framework (Mukasa, 2020; Kintu et al., 2019). As a result, many trainers continue to teach with outdated methods, limited industry exposure, and insufficient digital or pedagogical competence. This disconnect has weakened the relevance of training programs, contributing to the mismatch between graduates' skills and labour market demands (Agole et al., 2022; Okware & Ngaka, 2017).

In Uganda's TVET context, these CPD challenges have persisted for years. The National Instructors' College Abilonino (NICA) is only public instructor training college. Supported by instructor training departments at Nakawa Vocational Training

College, and Jinja Vocational Training Institute are the main institutions mandated to train and upgrade TVET instructors, yet they operate without a harmonized CPD system (MoES, 2019; Mutebi & Ferej, 2023). CPD programmes, where they exist, are short-term, lack follow-up, and are rarely aligned with industry or technological shifts (Barigye, 2024). Trainers often depend on isolated workshops or external partner projects, which are unsustainable once donor support ends. This situation has resulted in uneven quality of instruction, low morale among trainers, and limited innovation in teaching practice (Arineitwe, 2022; MoES, 2016).

The urgency of addressing CPD gaps is further reinforced by recent policy developments. The TVET Policy (2019) and TVET Act (2025) recognize CPD as a mandatory requirement for licensing and re-certification of trainers (Government of Uganda, 2025). However, implementation remains minimal, mainly due to inadequate institutional funding, weak coordination within the Ministry of Education and Sports (MoES), and lack of infrastructure to support digital or blended learning (MoES, 2019). The Skilling Uganda Strategy (2012–2022) had also emphasized professionalization of trainers, but its goals were not achieved because CPD systems were not integrated into institutional structures (ADEA, 2020). Consequently, the professional capacity of master trainers has stagnated even as industrial technologies evolve rapidly (Ddungu Kafuluma et al., 2018; Kim, 2021).

These challenges raise serious concerns for government, training institutions, employers, and development partners who depend on a competent TVET workforce to drive Uganda's industrialization agenda under Vision 2040 and the Fourth National Development Plan (NDP IV) (NPA, 2025). Without effective CPD, the TVET system cannot deliver trainers capable of producing skilled, innovative, and employable graduates (Serafini, 2021). It is within this context that the present study was undertaken

to explore strategies for enhancing CPD for TVET Master Trainers in public instructor training colleges in Uganda. The study responds to the concerns of the Ministry of Education and Sports, institutional managers, and industry stakeholders who seek sustainable, evidence-based solutions to strengthen trainer competence and align CPD with both national and global workforce demands.

1.2.1 Background of Technical Vocational Education and Training (TVET)

Globally, the attention to Technical Vocational Education and Training (TVET) is on the rise, underpinned by a belief in its capacity to strengthen economic growth, a national competitiveness and development. TVET is considered essential in addressing the problems of globalization, climate change, and knowledge and skill gaps in achieving the Sustainable Development Goals (SDGs). TVET has the potential of transforming education systems by aligning them with the demands of advanced technologies, growing industries, and knowledge-based economies. The researcher was motivated by the ideology that in lifetime history, TVET has been considered a programme for preparing trainees for the world of work. Until today, the perception about TVET persists that even countries with desirable education systems like Finland, China, South Korea, Japan, Singapore, Germany, and Norway still envisage TVET as a springboard for a sustainable future (Sultangaliyeva, 2019). As highlighted by UNESCO (2026), the development of vocation-specific skills, services, and production capabilities through TVET has been a sustained international focus for decades, with nations like China, India, Saudi Arabia, South Korea, and Uganda inclusive, all continuing to invest in it.

TVET is crucial for developing the workforce of today and tomorrow, a principle central to UNESCO's strategy for its transformation by 2029. This 2022-2029 strategy focuses

on using skills development to empower individuals, create decent work, and enable a shift towards digital, green, and inclusive societies (UNESCO, 2021). TVET is also essential for equipping people with the skills needed for work, life and sustainable development, all of which are critical for success in the contemporary labour market. However, despite TVET's global recognition for skills development, the proficiency of many of its graduates, particularly in developing nations, remains inadequate. In Uganda, for example, graduates often lack the competencies required by the employers and face high unemployment (UBOS, 2023). While factors like the technology gap, skill mismatch, and poor attitude contribute to youth joblessness, the technical incompetence of TVET trainers is also a significant factor (Akunda et al., 2024). Therefore, to satisfy the increasing demands of the labour market and social needs, TVET trainers must be well-equipped, possess updated competencies, and continuously improve their practices through continuous professional development as is the focus of this study.

Arineitwe etal (2022) study revealed that TVET personnel, particularly TVET trainers are an essential part in ensuring quality and effectively planning, delivery, assessment, and evaluation of the TVET system. Consequently, the importance of well-qualified TVET trainers is well documented by researchers and has been a core element in global settings (Arineitwe, 2021, 2022; Serafini, 2021). Qualified and competent TVET trainers are helpful in streamlining the trainees' experience through developing their skills, knowledge, attitudes and soft skills (21st-century skills) according to the demands of the labour market about trade-specific, pedagogy, andragogy, and generic skills. (Subrahmanyam, 2020) Despite recognition accorded to TVET trainers' role delivery of TVET, the contextual educational challenges of the twenty-first century continue to affect their efforts in equipping the graduates with the necessary competencies. As well,

TVET trainers in many countries have not been given the necessary support in terms of CPD, a gap which this study intended to bridge.

Moreover, in Uganda, instructor training has been accorded little attention since colonial time, and to date, stakeholders have not appreciated the relevance of TVET master trainers towards national development and economic growth of the country (Arineitwe, 2022). The biggest problem is the inadequate practical skills of the TVET trainers towards capacity building. Given the increasing advancement in pedagogical knowledge and technology in a dynamic society, quality training becomes questionable among TVET trainers. By equipping learners with practical skills, integrating technology, fostering innovation and entrepreneurship, promoting lifelong learning, and encouraging international collaboration, TVET plays a vital role in shaping a workforce that can thrive in the modern world (Sultangaliyeva, 2019). There is now an urgent need for a qualified and trained workforce with modern and improved technology who can demonstrate skills and other competencies in the professional workplace environment. This enhances the rollout of competent graduates into the labour market.

TVET systems in Africa differ greatly between countries. Each country has its unique policies, institutions, and approaches to TVET, which are shaped by historical, economic, and social variables. While TVET systems in Africa have achieved great progress, they still confront problems, such as the need for regular professional development of TVET trainers. The trainer has the difficulty of employing new technology, incorporating artificial intelligence into teaching and learning, and preserving trainer-based delivery methods and strategies. Limited resources, obsolete tools and equipment, and a mismatch between training programs and industry requirements. However, several nations are actively addressing these concerns through TVET reforms, collaborations, and infrastructure investments. TVET trainers must be

competent and experienced in a certain field (Junfeng and Ke, 2022). Furthermore, an efficient and competent TVET trainer plays a vital part in industrialization by producing competent and competitive graduates in the workplace (Ddungu Kafuluma et al., 2018). This study aimed to improve ongoing professional development techniques for successful TVET trainers in Uganda's teacher training institutes.

1.2.2 Contextual background of Technical Vocational Education and Training System in Uganda

The Ugandan education system follows a 7:4:2:3 structure, with seven years of free and compulsory primary education, four years of lower secondary school, two years of advanced or upper secondary education, and three to five years of higher education. The above system depicts the academic track and excludes the three-year pre-school or kindergarten programme, which is optional and mostly concentrated in urban areas (GoU, 1993; UNESCO, 2010).

The Uganda TVET system is extensive and diverse, including formal and informal components. The formal TVET follows a 7:4/3:2:2:3/4 pattern, which translates to seven years of free and compulsory primary education, four years of lower secondary education, or three years of Uganda Junior Technical Certificate at a farm school, technical school, or community polytechnic and in the form of skill development centres, and two years of national certificate in technical/vocational/business education. The level after certification is a two-year national certificate from a technical institution, a college of commerce or a national teachers' college, followed by three to four years of university education in engineering or vocation-related disciplines. This trend does not include the health sector. After attaining the above qualifications, and working

experience, one is free to enrol and pursue instructor training upon fulfilling admission criteria.

In Uganda, instructor training education has evolved in response to the country's need for skilled educators, particularly in TVET fields. The system aims to produce competent instructors for technical, vocational education and training (TVET) institutions, secondary schools, and other specialized training centres. Uganda's Instructor training education system has its roots in the British colonial education structure, which emphasized general education with limited vocational training. After independence in 1962, the government recognised the need to develop a skilled workforce to drive industrialization and economic growth. This led to the establishment of specialized training institutions for instructors, particularly in technical and vocational fields. The management of instructors training in Uganda has undergone reforms since 2007 when a new department called Teacher Instructors Education and Training was established to oversee instructors and health tutors in the country.

The TVET Trainers' Training Research and Innovation (TVET TTRI) department is a new department that was created in 2021 because of the restructuring of the Ministry of Education and Sports together with its affiliated institutions. The restructuring led to a split of the Directorate of Higher, Technical, Vocational Education and Training (HTVET) into two directorates: Technical Vocational Education and Training (TVET) and Higher Education. This department was split from the former Teacher Instructor Education and Training Department (TIET). Under the TIET department, it was a division charged with training and developing an instructor for the Health Education and Training Institutions, commonly known as health tutors, and the TVET Training Institutions, known as instructor/TVET trainers. The department oversees quality training for pre-service and in-service health tutors and instructors. One of the divisions

of the department, TVET Trainers' Training and Development, is responsible for training and developing all TVET trainers in the country, both in formal and informal settings. The TVET trainers include trainers for all technical and vocational education training institutions, including commercial-related training institutions, and trainers for all health education and training institutions.

The TTTRI department was created to deliver on a unique mandate of training and development of trainers, which personnel have had for a long time been overlooked. Recruitment of this category of cadre has been a practice of hand-picking individuals with good academic grades, and it is assumed that they possess competencies in training and development of master trainers for the TVET sub-sector; Streamline the training and development of a TVET trainer as a unique cadre with both trade and pedagogical competences; Promote research and innovation to inform policy decisions and advancement in TVET.

1.2.3 Background for Instructor and Technical Teacher Training in Uganda

Before the arrival of European educators, indigenous African education offered practical instruction to assist people to survive in Africa. Africans in other regions of the continent developed educational institutions that enabled them to control their environment and teach their people how to coexist peacefully with it. Africans were skilled in making spears, knives, picks, axes, cooking utensils, water tanks, and other items necessary to maintain their environment and satisfy their basic requirements for existence. They were also skilled in building and farming equipment. They also had the proper pedagogy to impart this knowledge to the younger generations. They had specialized skills that allowed them to live a comfortable life according to their natural environment and their capabilities. Traditionally, these skills have been passed from father to son or mother to

daughter within families and clans through apprenticeships (Okello Benson, 2015). The history of training trainers and professional teachers in Uganda dates to apprenticeships in Africa where young people learned much from qualified elders. From the perspective of pedagogy andragogy and practical learning (learning by doing).

A crucial component of TVET is the training of technical instructors and trainers, whose calibre impacts the calibre of VET graduates (Ddungu Kafuluma et al, 2018). The training of Instructors and Technical Teachers is an integral part of TVET whose quality determines the quality of TVET graduates (MoES, 2012). This is because teacher training is a cross-cutting function that serves the needs of all technical departments of the Ministry of Education and Sports (MoES). The Ministry of Education and Sports' specialized departments rely on TVET Trainers' training and development as a cross-cutting duty for the TVET subsector and world of work. The purpose of technical instructor development is to expand student teachers' academic knowledge, deepen their knowledge of the trade specific taught, and deepen their understanding of children's developmental stages and needs. Second, instructor training also aims to develop instructors who are competent, reliable, honest, and responsible (Kajubi, 1992) (Arineitwe et al 2022). However, little effort has been made to counter these effects, as training of trainers still involves inadequate trainers with skills gaps and inappropriate teaching methods. Challenges in instructor training are not a new phenomenon, as they are also mentioned in history.

In addition, in 1954, Kampala Technical Institute began offering a technical teacher training program. At the time, a credential in technical teacher education was being provided. After that, it was shut down until 1973 since there were no certified teachers available to teach technical education subjects. This course was reinstituted at Kampala Technical College in 1973, and it has since offered the same certificate course (Okello,

2005). The institution continued to hire the same unskilled teachers when the lone course in teacher training ended, suggesting that there was no longer any teacher training. This scenario has not altered yet because many instructors continue to lack pedagogical and technical proficiency. Okello (2005) further points out that the Diploma in Technical Teacher Education was introduced to offer a two-year diploma course at Uganda Polytechnic Kyambogo. The polytechnic could not offer a postgraduate diploma in technical education due to staffing gaps to handle the course. Okello (2005) observed that technical education gained tremendously in the 1990s and early 2000s owing to the liberalization of education in Uganda. Many private technical institutions increased during the period between 1990 and 2005. In 2001, His Excellency the President of the Republic of Uganda proposed to lift technical education and give this kind of education some prominence. He proposed the building of community polytechnics in all sub-counties in Uganda with objectives to provide the foundation for training craft persons, technicians, and other related skilled individuals to meet demands of industry, agriculture, and commerce as well as the trading of business, technical, and vocational skills. Before these community polytechnics could open, the government had to make sure that there were enough instructors on the ground. In September 2001, eleven community polytechnic instructors' colleges were opened to train the instructors (technical teachers). This was indeed a great boost to Technical Teacher training in Uganda, which had lacked such personnel for long. The only technical teacher training institution in Uganda was Uganda Polytechnic Kyambogo, which had very limited space for this enormous job.

In October 2002, an alarm bell was rung by the Education Report, calling for the rationalization of these colleges in the medium term (Okello, 2005). There was a fear of training many teachers, yet the community polytechnics were not in existence. These

teachers would be redundant on the street, and unemployed. This fear led to the closure of ten community polytechnic instructors' colleges, except for one left at Abilonino in Apac District, now called Kole District of Northern Uganda. The only college that remained was affiliated with Kyambogo University and offered a Diploma in Technical Teacher Education (DTTE) and a Certificate in Technical Teacher Education (CTTE). It was observed that Kyambogo University has been a major provider of instructor training. At its inauguration as a university, the bachelor's degree in Technical Teacher Education was among the new programs offered to boost the number of graduate teachers and instructors for vocational and technical institutions. The program was folded in 2010 due to a contradiction in management between the education faculty and the engineering faculty. This resulted in a decline in the number of graduate instructors or technical teachers in the Country.

The admission standard criteria for teacher education are specified in the National Teacher Policy (MoES, 2019b, p34), however, they mostly reflect general and academic teaching needs rather than vocational competencies. It should be highlighted that practical and/or industrial job experiences, which are crucial in producing competent workers, are less emphasized as a minimum admission criterion for vocational teacher schools in Uganda.

The teaching profession in general, and instructor technical teacher education in particular, has various issues in Uganda. According to the National Teacher Policy, 2019, Ugandan teachers' problems are related to inefficient teaching, insufficient credentials, standards, and restricted professional development (MoES, 2019). In its study on teacher issues in Uganda, UNESCO (2014) noted a shortage of instructors in terms of quality and quantity, an out-of-date curriculum, and insufficient training

resources as teacher problems. According to the MoES (2019), teacher difficulties stem from the teaching profession's lack of professionalization.

To solve the current teacher shortage, Uganda is implementing the National Teacher Policy (MoES, 2019b). The policy intends "to create a framework to professionalize and standardize the teaching profession, as well as to improve teacher development and management (p. 8)". The policy recognizes the need for qualified and effective teachers to provide a quality education that promotes human capital development. The policy recognizes that investing in teachers will enable learners' acquisition of the required skills, knowledge, and values to contribute to national development.

Currently, five institutions, all affiliated with Kyambogo University, offer a diploma course in instructor technical teacher education. These institutions implement a harmonized curriculum that incorporates training in pedagogy and general and trade courses in various disciplines. Before the harmonization process, the instructor-training programmes (DTTE, DVTI, CTTE, and CVTI) offered training mainly in pedagogy, and their graduates would be ill-equipped with trade-specific content and skills. Therefore, the harmonization process was intended to raise the competence level of TVET trainers, who would then contribute to skilling other Ugandans (Kyakulumbye, 2012). Instructor training in Uganda remains a critical component in equipping educators with the skills to train the next generation of skilled workers, thereby contributing to national development. In a bid to address the skills, the researcher was convinced to conduct a study entitled "Enhancing CPD for TVET Master Trainers."

1.2.4 Concept of Continuous Professional Development

According to international Labour Organisation (ILO, 2010), the concept of Continuous Professional Development (CPD) in TVET has its roots in the broader movement of

lifelong learning that gained momentum in the mid-20th century, particularly after World War II, when rapid industrialization and technological advancement demanded a constantly evolving workforce. Initially, CPD in TVET was informal and sporadic, often taking the form of on-the-job training or short refresher courses to keep the workforce updated with new machinery and techniques. However, by the 1970s and 1980s, international bodies such as United Nations Education Scientific Cultural Organization (UNESCO) and the ILO began to emphasize the importance of structured, ongoing professional development for vocational educators, recognizing that well-trained instructors were key to improving the quality and relevance of vocational education (Petitjean, 2006). The global focus on structured CPD led to policy reforms in many countries, encouraging institutionalized CPD programs for TVET trainers, often tied to teacher licensing, curriculum reforms, or new competency-based training frameworks. In the 1990s and early 2000s, CPD evolved further with the integration of ICT and the growing demand for 21st-century skills, pushing training institutions to adopt more flexible, learner-centred, and industry-responsive approaches (Axmann et al., 2015).

Currently, CPD in TVET is no longer seen as an optional add-on but as a core pillar of education reform, with growing emphasis on innovation, digital pedagogy, and workplace-based learning models (Durgun, 2016). However, CPD implementation remains uneven globally. While high-income countries have developed robust CPD ecosystems, many developing countries, including those in sub-Saharan Africa, still grapple with inconsistent policies, inadequate funding, and limited institutional capacity (Njenga, 2024). However, with the inception of the TVET Act, 2025, CPD is envisaged as a core component of a TVET trainer's professional practice. According to the TVET Act, 2025, it is stated that "a TVET trainer shall undertake continuous professional

development programmes as may be prescribed by the TVET Council" (Uganda, 2025, p53). The move to structure, operationalise and institutionalise CPD in Uganda is a timely intervention owing to a fast-changing labour market driven by automation, green technologies, and digital disruption that effective CPD for TVET trainers is no longer just a professional requirement, but a strategy for improving the teaching profession for national development.

In Africa and particularly in Sub-Saharan Africa, the historical development of Continuous Professional Development (CPD) in Technical and Vocational Education and Training (TVET) has been shaped by post-independence priorities, donor influence, and shifting economic demands (Haßler et al., 2020). Following the independence movements of the 1960s and 1970s, many African countries prioritized vocational education as a tool for nation-building and self-reliance, but little attention was given to the ongoing development of trainers themselves (Eicker et al., 2017). Most TVET instructors were either expatriates or teachers trained in traditional academic methods, with limited exposure to industrial practices. CPD, where it existed, was largely informal, often implemented through sporadic donor-funded workshops or external training missions (Haßler et al., 2020). By the 1990s, as structural adjustment programs reshaped African economies and unemployment surged, attention turned back to vocational skills to promote youth employment and productivity. This period saw the beginning of more structured CPD initiatives, influenced by global education reforms and agencies like UNESCO, ILO, and GIZ, which pushed for competency-based education and training (CBET) systems. Still, many efforts were fragmented, underfunded, and poorly integrated into national education frameworks (Grijpstra & Papier, 2015). In the 2000s and beyond, with the rise of the Africa Union's Agenda 2063 and the Continental Education Strategy for Africa (CESA), CPD began gaining stronger

institutional footing, with several countries developing national TVET policies that included CPD as a strategic priority (Papier, 2016). Today, in Sub-Saharan Africa, CPD for TVET trainers is increasingly recognized as essential for quality improvement, especially in the face of rapidly changing labour market needs, digital transformation, and the push for entrepreneurship (Negash et al., 2024). However, many challenges persist, ranging from inadequate institutional capacity and funding gaps to a lack of coherent national CPD frameworks and limited industry linkage (Njenga, 2024). The continent stands at a pivotal point where CPD must transition from donor-dependent projects to sustainable, system-wide strategies that empower trainers and align TVET with the realities of Africa's socio-economic landscape.

The history of Continuous Professional Development (CPD) for TVET trainers in Uganda reflects a slow but determined evolution from neglect and fragmentation to growing recognition and structured reform. In the decades following independence, vocational education itself was marginalized, seen as a second-tier alternative to academic education, and as a result, little emphasis was placed on the training or upskilling of TVET instructors (Kim, 2021). CPD for trainers was virtually non-existent; many instructors entered the profession with limited pedagogical preparation and developed their skills informally on the job (Okware, & Ngaka, 2017). By the 1990s, as Uganda's economy began shifting towards modernization and job creation, the role of vocational training gained more attention, especially with rising youth unemployment. However, CPD remained poorly coordinated and heavily reliant on donor-supported workshops or ad hoc short courses (Kim, 2021). The turning point came with the introduction of the Skilling Uganda Strategy (2012–2022) and later the TVET Policy of 2019, both of which emphasized the need for a competent, industry-relevant workforce as a national priority. These policies recognized the importance of

equipping trainers not only with technical knowledge but with the pedagogical and digital skills needed to navigate a rapidly evolving labour market (Barigye, 2024).

The TVET Policy marked a shift toward structured, institutionalized CPD, calling for regular upgrading of trainer competencies to keep pace with technological and industry changes. The creation of the TVET Council further reinforced this momentum by establishing clear regulatory frameworks, setting standards for trainer recruitment, development, and certification, and promoting continuous learning as a professional requirement (ADEA, 2020). Currently, instructors at the degree level are trained at Kyambogo University, while the National Instructors' College Abilonino (NIC) focuses on preparing instructors for lower-level training. Additionally, institutions such as Nakawa Vocational Training Institute and Jinja Vocational Training Institute specialize in providing in-service training programmes for practicing TVET instructors (MoES, 2016).

In recent years, Uganda has made significant strides toward formalizing CPD practices for TVET trainers, though major challenges remain. TVET ACT 2025, establish the Technical Vocational Education and Training Council as regulator and the work of agencies such as Uganda Vocational Technical Assessment Board (UVTAB) as assessment body and Ministry of Education and Sports as delivery arm. These mechanisms for aligning training with occupational standards and competency-based education models (Mutebi & Ferej, 2023). Trainer assessment and certification have become more structured, with CPD participation increasingly tied to professional progression. Public-private partnerships and collaborations with international development partners like GIZ, Enabel, and VVOB have brought in critical support, introducing digital literacy programs, gender-sensitive pedagogies, and innovative learning tools (Turyatemba, 2023). Trainer assessment and certification have become

more structured, with CPD participation increasingly tied to professional progression. Public-private partnerships and collaborations with international development partners like GIZ, Enabel, and VVOB have brought in critical support, introducing digital literacy programs, gender-sensitive pedagogies, and innovative learning tools (Turyatemba, 2023).

Nonetheless, CPD implementation across institutions remains uneven. While national policy frameworks now emphasize CPD as a pillar of quality assurance, many institutions still face resource constraints, inadequate funding, and limited capacity to deliver consistent, meaningful training (Mutebi & Ferej, 2023). Trainers in rural or under-resourced colleges often miss out on opportunities for upgrading, and monitoring mechanisms for CPD compliance are still developing (Okware & Ngaka, 2017). However, the current trajectory is promising: the government, through the Ministry of Education and Sports and the evolving TVET Council, is working toward a dynamic, responsive CPD ecosystem; one that fosters lifelong learning, professional pride, and alignment with both national development goals and global labour market demands. The long-term vision is to raise the status of the TVET trainer, enhance the quality of instruction, and ensure that Uganda's technical graduates are not only employable but competitive in a global economy (MoES, 2017).

1.2.5 TVET Master Trainers

A TVET Master Trainer is a specialized professional who develops the skills and capabilities of TVET instructors. Their major responsibility is to teach, coach, and assist TVET trainers so that they may effectively provide competency-based education that satisfies industry requirements. TVET master trainer aim to improve trainers' technical and pedagogical abilities, such as curriculum building, instructional delivery, and

learner assessment. ToTs contribute significantly to the overall quality and relevance of technical and vocational education and training systems by providing trainers with current information, effective teaching methodologies, and industry-relevant approaches (MoES, 2016).

TVET Master Trainer (ToTs) play an important role in determining the quality of vocational education by ensuring that teachers are well-prepared to satisfy industry requirements. During the preparatory phase, ToTs create training courses that are consistent with both national occupational requirements and developing market needs (MoES, 2016). They guarantee that training modules are competency-based, practical, and targeted to the unique abilities needed in different technical domains. Furthermore, ToTs provide trainers with critical pedagogical skills such as lesson preparation, resource management, and the use of new technologies in instruction. Their efforts at this point ensure that TVET teachers enter the classroom feeling confident, organized, and prepared to deliver meaningful learning experiences.

During the delivery phase, TVET Master Trainer teach instructors how to administer training programmes successfully in real-time classroom and workshop settings. They demonstrate best practices in teaching methodologies, such as learner-centred approaches, hands-on activities, and inclusive educational initiatives. TVET master trainers also emphasize the value of communication skills, classroom management, and adaptability to different learning styles. They promote reflective practice in trainers, supporting ongoing development and creativity in training approaches. TVET master trainers guarantee that TVET trainers can confidently impart knowledge and skills to learners by providing mentorship and coaching, making technical training more dynamic and industry relevant (MoES, 2016).

Assessment is an essential component of TVET, and TVET master trainer help trainers develop the skills necessary to perform fair, accurate, and reliable assessments. They teach instructors to create competency-based assessment methods that correctly measure students' practical skills and theoretical comprehension. This covers formative and summative assessment methodologies, rubric use, and constructive feedback techniques. Furthermore, ToTs emphasize the significance of connecting examinations with real-world scenarios to guarantee graduates are job ready. ToTs ensure the integrity and efficacy of the TVET system by requiring trainers to be knowledgeable in assessment design and execution (MoES, 2016). TVET trainers are required to deliver TVET. They direct and facilitate the learning of the essential scientific principles, technological know-how, and general knowledge that comprise TVET. Because TVET encompasses a wide range of vocations, TVET teachers are equally visible in many occupations. Depending on the context and previous usage, they may be referred to as lecturers, instructors, trainers, tutors, or teachers all over the world. Students can get instruction from TVET teachers in a variety of formal educational settings, including skill development centres, vocational institutes, technical institutes, vocational/technical colleges, and universities.

1.2.6 Dual Professional for TVET master trainer

A dual professional TVET trainer combines technical skills in each industry with pedagogical competency to successfully instruct and train students. According to UNESCO-UNEVOC (2018), dual professionals must have a thorough understanding of their occupational sector as well as mastery of new teaching approaches to bridge the gap between education and industry demands. This dual function necessitates ongoing professional development to keep up with technology improvements and changing industry norms (OECD, 2019). Furthermore, trainers must use competency-based

training (CBT) methodologies that emphasize hands-on, practical learning in line with labour market expectations (European Centre for the Development of Vocational Training, 2020). Effective TVET trainers also promote workplace collaboration, partnering with industry to provide real-world learning opportunities such as apprenticeships and on-the-job training (ILO, 2021). They must also follow occupational safety and health (OSH) requirements to create safe training settings (World Bank, 2022). By combining these two abilities, TVET trainers improve the employability of their students and contribute to a competent workforce that satisfies industry expectations.

1.2.7 Professional Competencies of TVET Master Trainer

To deliver well to the trainees for industry expectations, a TVET trainer must have both technical knowledge and pedagogical skills. According to UNESCO-UNEVOC (2018), a TVET trainer's professional competencies include mastery of industry-specific skills, the capacity to develop and conduct competency-based training (CBT), and knowledge of assessment and evaluation procedures. Trainers must also use current teaching tactics, such as digital learning tools and hands-on training, to accommodate varied learners. Furthermore, creating strong industry links ensures that training remains relevant to current labour market demands (ILO, 2021). Effective communication, mentorship, and understanding of occupational safety and health (OSH) requirements all contribute to a trainer's capacity to provide a safe, inclusive, and engaging learning environment (World Bank, 2022). Continuous professional development is also required, allowing trainers to adapt to technology advances and changing educational regulations (OECD, 2019). By combining these abilities, TVET trainers contribute significantly to the development of a trained, job-ready workforce.

1.3 Statement of the Problem

Uganda Vision 2040, the Fourth National Development Plan (NDP IV), the African Union's Agenda 2063, the Continental Education Strategy for Africa (CESA), and the Sustainable Development Goals (SDGs) all position Technical and Vocational Education and Training (TVET) as a key driver of industrialization, innovation, and inclusive economic growth. These frameworks envision a robust TVET system sustained by highly competent Master trainers (ToTs) equipped with modern technical, pedagogical, and industry-relevant skills to produce a skilled, employable, and innovative workforce (MoES, 2016). Ideally, ToTs should embody occupational expertise, andragogical competence, and soft skills that enable learner-centred instruction, innovation, research, assessment, and mentorship, all essential to achieving sustainable national development goals.

However, the current reality in Uganda's TVET sector sharply contrasts with this vision. Despite policy recognition of TVET's importance, the system is undermined by weak institutional capacity and a near-total absence of a structured, continuous professional development (CPD) framework (Mukasa, 2020). Existing CPD initiatives are sporadic, donor-driven, and lack coordination, standardization, and linkage to career advancement (Kintu et al., 2019). Many ToTs operate with outdated technical and pedagogical knowledge, minimal industry exposure, and within poorly resourced institutions with limited digital infrastructure (Agole et al., 2022). These challenges are compounded by chronic underfunding, with TVET receiving only 0.4% of the national education budget (Mutebi & Ferej, 2023), making sustainable CPD nearly impossible. Consequently, efforts to implement competence-based training have had limited success due to the absence of systemic investment and institutional support mechanisms (Giap Weng, 2021).

The persistent CPD deficit has far-reaching implications. Institutionally, it perpetuates outdated instructional methods, low morale, and inefficient resource utilization. At the national level, it fuels a skills mismatch between graduates and labour market demands, leading to high youth unemployment and low productivity (Okware & Ngaka, 2017). Internationally, it weakens Uganda's progress toward SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth). This study, therefore, seeks to empirically examine the gaps in CPD practices for TVET ToTs, analyze mechanisms for identifying training needs, and propose contextually grounded strategies for a sustainable, coordinated, and impactful CPD framework. The findings aim to guide policy formulation and institutional reforms that enhance trainer competence and strengthen the overall quality of Uganda's TVET system.

1.4 Purpose of the research

To develop innovative, evidence-based strategies for enhancing Continuous Professional Development (CPD) that empower TVET master trainers to meet 21st-century skill demands and produce highly competent, employable graduates in Uganda.

5.1 The objectives of the study

1.5.1 Main objective of the study

To strengthen the continuous professional development of TVET master trainers through effective, innovative, and needs-based CPD strategies aimed at improving trainer competences and producing industry-ready graduates.

1.5.2. Specific objectives of the study

i. Assess the current CPD practices available for TVET trainers in instructor training institutions in Uganda.

ii. Examine the strategies used in identifying the training needs of TVET trainers in the Instructor Training Institution in Uganda.

iii. Determine adoptable innovative CPD strategies that can improve the competences of TVET master trainers in the Instructor Training Institution in Uganda.

1.6 Research questions of the research

The study answered the following Research questions:

i. What CPD practices are currently implemented for TVET trainers in instructor training institutions in Uganda?

ii. What specific strategies are used by instructor training institutions in Uganda to identify the training needs of TVET trainers?

iii. What adoptable and innovative CPD strategies can be introduced in Uganda's instructor training institutions to enhance the competencies of TVET master trainers?

1.7 Research Hypothesis

H1: There is a significant relationship between the current CPD practices implemented in instructor training institutions and the professional competences of TVET master trainers in Uganda.

H2: The strategies used to identify training needs in instructor training institutions significantly influence the professional competences of TVET trainer of trainers in Uganda.

H3: The adoption of innovative CPD strategies positively impacts the improvement of competences among TVET trainer of trainers in Uganda.

1.8 Justification of the study

Much as TVET has become globally concerned, there are still inadequate studies conducted in the areas of CPD for TVET master trainers. The public has not yet developed enough confidence in the TVET trainers as a competent workforce to deliver skills training and development of TVET trainees to the expectations. The urgent need to enhance the quality and relevance of technical and vocational training in Uganda through effective and sustainable Continuous Professional Development (CPD) for TVET Master trainers; a core driver of human capital development and economic competitiveness. Despite the growing policy emphasis on vocational skills development in frameworks such as Uganda Vision 2040, NDP IV, and the 2019 TVET Policy, Uganda's training institutions still struggle with outdated pedagogical practices, limited CPD participation, and a widening gap between training outputs and labour market demands (MoES, 2019; Namugga, 2024). While some earlier research has explored general issues of TVET quality assurance, graduate employability, and curriculum relevance (Mutebi & Ferej, 2023; Kintu et al., 2019), few studies have specifically examined the strategic design and implementation of CPD mechanisms targeting Master trainers; those charged with shaping the front-line TVET workforce. This lack of focused inquiry is concerning given the increasingly complex demands of the labour market and the critical role instructors play in aligning training with industry standards,

technological shifts, and inclusive pedagogies. By filling this empirical gap, the current study sought to provide evidence-based insights and actionable strategies for strengthening Uganda's CPD ecosystem, improving trainer competencies, and ultimately ensuring that TVET graduates are competitive, employable, and equipped for lifelong learning.

1.9 Significance of the study

This study holds significant value for multiple stakeholders in Uganda's Technical and Vocational Education and Training (TVET) sector. It is intended to benefit TVET trainers, particularly Master trainers, by identifying practical and adoptable Continuous Professional Development (CPD) strategies tailored to their evolving instructional and technical needs. With improved access to structured CPD, trainers can enhance their competence in pedagogy, innovation, and industry-relevant skills, resulting in greater professional confidence, motivation, and career growth.

For TVET institutions, the study provides a roadmap to strengthen internal CPD systems and align trainer development with institutional goals. By adopting more coherent and effective CPD frameworks, institutions can enhance training quality, ensure consistency across programs, and build their reputation as credible providers of workforce-ready graduates. Trainees also benefit indirectly through exposure to better-trained and more motivated instructors. This leads to richer learning experiences, stronger practical skills, and higher employability, ultimately boosting their competitiveness in the job market and their capacity to contribute to national development.

The Ministry of Education and Sports, together with other policy-making bodies, will gain evidence-based insights to guide CPD-related reforms, strengthen resource allocation, and establish more effective monitoring and evaluation mechanisms. These

findings can help the Ministry set clear standards, improve coordination across institutions, and foster stronger partnerships with industry and development partners.

At the national level, the study directly supports the realization of key frameworks such as Uganda Vision 2040 and NDP IV by addressing one of the most critical gaps in the TVET sector: the quality and capacity of trainers. By equipping trainers with relevant skills and ensuring structured professional growth, the study contributes to building a workforce that can drive industrialization, innovation, and inclusive economic growth.

For academic institutions and scholars, the study expands the limited research base on CPD within Uganda's TVET system. It provides a foundation for further studies, informs curriculum design for training future TVET professionals, and stimulates scholarly debate on effective models of professional development in resource-constrained contexts.

The broader public, particularly employers and industry stakeholders, benefits from a more skilled and industry-aligned workforce. With better-trained TVET graduates entering the labour market, employers experience fewer skill gaps, higher productivity, and a stronger contribution to inclusive economic growth.

1.10 Scope of the study

The scope of the study outlines the boundaries within which the research was conducted, focusing on the content, geographical area, and timeframe.

1.10.1 Content Scope

This study is centred on enhancing Continuous Professional Development (CPD) for TVET Trainer of Trainers in Uganda, with a focus on how strategic CPD interventions influence trainer competencies in a dynamic and evolving skills landscape. It

investigates three core dimensions of CPD strategies: the current CPD practices being implemented within instructor training institutions, the effectiveness of existing approaches used to identify the training needs of TVET instructors, and the feasibility of adopting innovative, context-relevant strategies to strengthen CPD delivery. The study further examines how these strategies impact specific trainer competencies such as planning and organizational abilities, communication skills, use of participatory (active teaching and learning) methods, research capacity, creativity and innovation, ICT proficiency, hands-on technical skills, utilization of instructional resources, and assessment of learning. Moreover, it recognizes the status of Instructor Technical Training Institutions as a critical intervening variable that shapes the effectiveness of CPD implementation.

1.10.2 Geographical Scope

This study encompasses the entire geographical area of Uganda, with specific data collection conducted at key TVET Trainer Colleges including the National Instructors' College Abilonino (NICA), Nakawa Vocational Training College, and Jinja Vocational Training Institute. These institutions were purposively selected because they serve as primary centres for the training and in-service development of TVET instructors and Master trainers across the country. In addition, officials from the Ministry of Education and Sports (MoES), representatives from education development partners, and employers of TVET graduates were engaged to provide broader policy, implementation, and labour market perspectives. This inclusive approach ensures a national outlook, allowing the study to capture diverse insights across institutional, governmental, and industry levels; thereby strengthening the relevance, applicability, and scalability of the study's findings and recommendations.

1.10.3 Time Scope

The time scope of this study is limited to the period between 2020 and 2024. This period was selected because it represents a critical phase in the implementation of Uganda's TVET Policy and related reforms, particularly those focusing on Continuous Professional Development (CPD) for Master trainers. During these years, there was renewed national momentum toward aligning TVET with labour market needs, supported by the rollout of the TVET Implementation Roadmap, efforts to operationalize the TVET Policy (TVET, 2019), and growing partnerships with development actors like GIZ, Enabel, and VVOB. It also reflects a period in which the COVID-19 pandemic exposed urgent gaps in digital readiness and instructional capacity, prompting institutions and government to explore innovative CPD approaches. Focusing on this recent window allows the study to assess current practices, emerging innovations, and institutional responses, while generating actionable insights that are timely, relevant, and responsive to ongoing sector needs.

1.11 Assumptions of the study

This study was based on several key assumptions that underpinned its design and execution. The study was grounded in the assumption that participants, including TVET Master Trainers, institutional heads, officials from the Ministry of Education and Sports, and development partners, would respond truthfully and thoughtfully to the research questions. It was assumed that they had sufficient knowledge of and engagement with CPD practices to provide meaningful insights, and that their responses reflected authentic lived experiences within the institutions they represented.

It was also assumed that the selected institution, namely the National Instructors' College Abilonino (NICA), Nakawa Vocational Training College, and Jinja Vocational

Training Institute, offered a fair representation of the wider landscape of CPD practices in Uganda. These institutions were chosen because of their central role in training TVET instructors and their geographical and institutional diversity, which the study relied on to generalize its findings within the national context.

The study further assumed that the policy environment and institutional structures governing CPD during the 2020–2024 period were sufficiently stable to allow for reliable analysis. This included the continuity of strategic documents such as the TVET Policy, Uganda Vision 2040, and the implementation efforts under the Skilling Uganda framework, which provided a backdrop for assessing progress and gaps in CPD implementation.

Lastly, the research operated on the assumption that effective CPD strategies had a direct and observable impact on the professional competencies of TVET trainers. It presumed that improvements in trainer skills; ranging from pedagogy and ICT use to research and assessment techniques; could be linked to structured and well-supported CPD interventions, thereby influencing the overall quality of TVET delivery in Uganda.

1.12 Theoretical framework

This study was grounded in the Experiential Learning Theory (ELT). The theory was developed by David Kolb in 1984, building on earlier works by educational theorists such as John Dewey, Kurt Lewin, and Jean Piaget, who emphasized learning as an active, socially grounded, and iterative process (Kolb & Kolb, 2009). ELT assumes that effective learning occurs when individuals engage in a four-stage cyclical process: Concrete Experience, where the leaner actively participates in a new task or situation, such as attending a CPD workshop, testing a new teaching method, or using a new digital tool. Reflective Observation, in which the learner looks back on the experience,

assessing what happened, what worked, and what did not, often through journaling, peer discussions, or self-evaluation. Abstract Conceptualization, where insights from reflection are used to develop new understandings or revise existing frameworks; this might involve linking practice to theory or identifying principles that can guide future instruction. Active Experimentation, where the learner applies the latest ideas or strategies in practice, setting the stage for fresh experiences and further learning (Kolb & Kolb, 2009).

Scholars have since expanded Kolb's work to deepen its relevance to adult learning and institutional development. For instance, Peter Jarvis challenged the cyclic rigidity of Kolb's model and introduced the concept of disjuncture, suggesting that when individuals encounter situations that disrupt their assumptions, it triggers deeper learning (Dyke, 2017). Jennifer A. Moon emphasized the role of structured and guided reflection in professional education, arguing that reflection is not just a step but a skill that requires cultivation (Moon, 2006). Meanwhile, Beard and Wilson broadened the model to consider emotional engagement and contextual influences, stressing that the environment; including institutional support, culture, and leadership; shapes how experiential learning is internalised and transferred (Beard & Wilson, 2006).

Experiential Learning Theory (ELT) has been widely applied across diverse fields including education, health sciences, engineering, and vocational studies, demonstrating its versatility in guiding both formal and informal learning processes. In teacher education, ELT has been used to design reflective practicum experiences where student-teachers alternate between classroom teaching, reflective journaling, and feedback sessions to refine their pedagogical skills (Nuraeni & Heryatun, 2021). In the health sciences, particularly nursing and medical training, ELT underpins simulation-based learning, where learners engage in hands-on clinical scenarios followed by debriefs and

theoretical integration to strengthen clinical judgment and decision-making (Uppor et al., 2024). The theory has also been pivotal in engineering and technical training, where students work on design projects or field-based assignments, then reflect and reapply insights to improve their processes (Mekala & Geetha, 2022).

Despite its wide applicability, Experiential Learning Theory (ELT) has faced several criticisms. One major critique is its overly linear and cyclical structure, which some scholars argue does not reflect the unpredictable, non-sequential nature of real-world learning, especially in complex institutional setting (Kayes, 2002). Others argue that ELT overemphasizes the individual learner while neglecting the social, cultural and political context of learning, downplays the role of emotion and power dynamics essential to adult development, and lacks robust empirical tools for effectively measuring and applying its learning cycle stages (Bergsteiner et al., 2010). To address these limitations, the current study integrated ELT with a strong focus on contextual factors, particularly the institutional environment in which CPD occurs, and included qualitative insights that captured the lived experiences, constraints, and institutional cultures shaping trainer learning. By doing so, the study offered a more grounded application of ELT that reflected the realities of TVET master trainer development in Uganda.

Experiential Learning Theory, was chosen in for this study because the model is applicable in the context of TVET, where professional growth relies not only on content knowledge but on continuous application, adaptation, and innovation in real-world instructional environments. The theory's four-stage cycle closely aligns with the aims of CPD, which is the study's core independent variable. Each of the CPD strategies under investigation, such as current practices, training needs identification, and innovative approaches, directly engages trainers in experiential learning processes that

ultimately shape their competencies in areas like instructional planning, participatory teaching methods, ICT use, and assessment. ELT was used in this study to interpret how these CPD interventions translate into measurable changes in trainer behaviour and skill application, particularly within the context of institutional environments that may either support or constrain the experiential cycle. By anchoring the conceptual framework in ELT, the study explored not just whether CPD influences trainer competencies, but how the process of learning through experience unfolds in practice and what institutional factors enhance or inhibit that learning.

1.13 Conceptual Framework

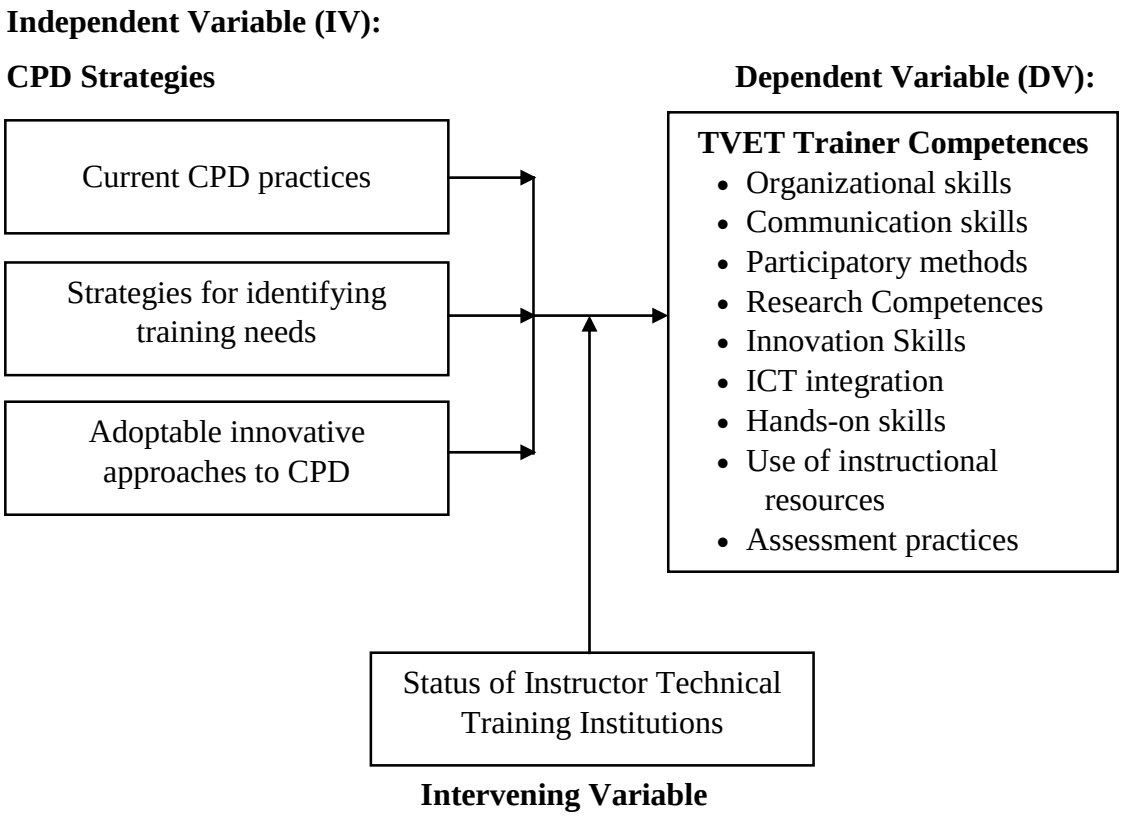

Figure 1.1: Conceptual framework, showing the relationship between CPD Strategies and TVET trainer competencies

Source: Adopted from Davis and Arend, (2014) and modified by the researcher

The conceptual framework in Figure 1 shows the relationship between Continuous Professional Development (CPD) strategies (independent variable) and TVET trainer competences (dependent variable) among Master trainers in Uganda. CPD strategies are examined through three dimensions: current CPD practices, strategies for identifying training needs, and adoptable innovative approaches to CPD. Current CPD practices include existing in-service programmes, workshops, and refresher courses delivered by institutions or development partners. Training needs identification involves mechanisms such as performance appraisals, feedback systems, and industry consultations used to assess and prioritize skill gaps among trainers. Adoptable innovative approaches refer to integration of digital learning, mentorship, peer learning models, and practice-based learning strategies into CPD programming. TVET trainer competences are assessed through indicators such as organizational skills, communication skills, use of participatory teaching methods, research capacity, innovation, ICT integration, hands-on skills, instructional resource utilization, and assessment practices. The status of Instructor Training Institutions serves as an intervening variable, influencing how CPD strategies are delivered and received. This includes factors such as institutional capacity, infrastructure availability, funding levels, leadership support, and the institutional culture toward professional development. The framework suggests that effective CPD strategies, when supported by enabling institutional conditions, contribute significantly to enhancing the instructional quality and professional readiness of TVET Master Trainers. This conceptual framework to be applied to operationalise experiential learning theory by providing a structured plan for how to design and implement learning experiences based on the theory principles. The framework is linked to objectives of the study was measured based on indicators from independent variable, dependent variable and intervening variable.

1.14 Operational Definition of Terms

Andragogy: Refers to methods and approaches used in adult education, emphasizing self-directed learning, problem-solving, and drawing from learners' experiences.

Competence: The ability of a person to perform a task successfully and efficiently according to an established standard.

Competence-based Education Training: An approach to learning that focuses on mastering specific skills and competences rather than simply acquiring theoretical knowledge.

Competency: The capacity to mobilize a combination of knowledge, skills, values, attitudes, and experiences to solve a contextualized problem.

Competency Level: Indicators of the degree of proficiency or skill a person has in performing a specific task.

Continuous Learning: The ongoing process of gaining new knowledge, skills, and experiences throughout one's life or career.

Continuous Professional Development (CPD): A proactive, lifelong strategy that enhances personal and professional growth by building and maintaining relevant knowledge and skills.

Effective TVET Trainer: An instructor who creates a motivating and supportive learning environment that equips trainees with the skills needed for success in the job market.

Master TVET Trainer: A Trainer of Trainers (ToT) responsible for equipping instructors with both technical and pedagogical expertise.

Pedagogy: The teacher-centred art and science of educating children, grounded in principles of cognitive and social development.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter provides a comprehensive review of existing literature related to the study's focus on strategies for enhancing Continuous Professional Development (CPD) for TVET Master Trainers in Uganda. The chapter begins with a review of literature relevant to each objective, followed by an exploration of the intervening role of institutional support structures, and concludes with a summary of insights that frame the study's unique contribution to improving CPD systems within Uganda's TVET landscape.

2.2 Review of Related Literature

This section presents a review of related literature structured according to the study's specific objectives, allowing for a focused examination of key themes surrounding CPD practices, training needs identification, and innovative strategies for enhancing trainer competences.

2.2.1 Current CPD for TVET trainers

Continuing professional development (CPD) is generally understood to mean all learning content aimed at improving professional competencies through the acquisition of knowledge and the learning of new skills beyond those acquired in initial training (Njenga, 2018). In total agreement, the researcher's idea of CPD in the area of study was to ensure TVET trainers acquire new skills, knowledge, and employable skills, and to close the gaps between the industry and TVET institutions that will respond to the public outcry of increasing unemployment in the country. This situation has caused

many graduates to be referred to as job seekers rather than makers. The major gap in Njenga's (2018) study is that it was carried out in Kenya; however, the researcher is investigating the real problem of TVET trainers failing to demonstrate practical training in Uganda.

UNESCO-UNEVOC's (2020) trends mapping research identified 10 educational trends for TVET over the coming decade. TVET graduates must possess transversal abilities, including critical thinking and cooperation, as well as applicable vocational skills. Industry-specific skills must also be updated and upgraded on a continuous basis. This study emphasizes the significance of continuous professional development and industry exposure for both in-service and pre-service TVET instructors and trainers. The document emphasizes the need for establishing digital capabilities for teachers and trainers, including an understanding of new technologies, equipment, and working practices. This study emphasizes the critical necessity for TVET instructors to use new pedagogical and technological techniques to offer effective teaching and training practices. These important qualities correlate with the proposed competence framework for TVET instructors in the digital era. The suggested paradigm emphasizes TVET instructors' dual function as knowledge providers and practical skill trainers. The trends mapping study emphasises on the importance of developing digital competencies among TVET teachers to provide high-quality, learner-centred distance training (UNESCO-UNEVOC, 2022b, p. 48).

UNESCO has guided TVET instruction internationally for 20 years through policies, initiatives, and research, including trend mapping studies (UNESCO-UNEVOC, 2020, 2022b). UNESCO-UNEVOC's improving the Quality of TVET using Technology: A

Practical Guide (UNESCO-UNEVOC, 2020) introduced a four-stage model of technology integration in teaching. Additionally, UNEVOC has created training initiatives and resources, such as videos. UNESCO educated about 2700 TVET instructors globally between 2015 and 2021, as stated in the discussion document for UNESCO's TVET Strategy for 2022-2029, which aims to achieve the following: (i) Skills for individuals to learn, work and live. (ii) Skills for economies to transition towards sustainable development. (iii) Skills for inclusive and resilient societies. Many countries have policies and structures in place to support the professional development of TVET instructors. The Competence Development and Assessment in TVET (COMET) initiative, which began in Germany, has expanded internationally to provide a competence and assessment paradigm for both students and instructors.

Several competency standards and frameworks have been proposed for TVET teachers' professional development (Diao & Yang, 2021; Diep & Hartmann, 2016; Jafar et al., 2020; Latchem, 2017; Wagiran et al., 2019). In-service TVET instructors continue to face significant hurdles in their professional development, as evidenced by recent UNESCO trend mapping research (UNESCO-UNEVOC, 2022b). The issues faced by instructors include limited infrastructure and resources, as well as a lack of appropriate professional development programs for digital competence. Current concerns include a dearth of qualified vocational teachers and inadequate TVET facilities and infrastructure (Milio et al., 2014; World Economic Forum, 2017).

China has considerable policy support for developing standards and frameworks to guide teaching and learning reforms in TVET and professional development. In 2019, the Ministry of Education published the implementation plan for further developing TVET Teachers' Dual Roles in the New Age (Ministry of Education of China, 2019b). The plan aims to reform TVET by developing professional standards and frameworks

for recruitment, promotion, and performance evaluation. In May 2022, the Ministry of Education published a policy statement and notice regarding the promotion of TVET teachers' professional competence (Ministry of Education of China, 2022a), which reiterates these topics. This notice aims to improve and standardize professional standards for TVET instructors and principals.

China's TVET teacher development follows a top-down model, with government entities at various levels shaping policies and providing financing assistance. The State Council of China's National Implementation Plan for the Reform of Vocational Education (2019) calls for the establishment of 100 TVET teacher training bases across the country to enhance in-service teachers' dual competence as both class teachers and vocational skill trainers. The proposal requires in-service instructors to get at least one month of training annually, either at bases or in businesses. The Ministry of Education has produced policy statements and strategic initiatives to encourage vocational teacher development. The Ministry's publishing of a strategy for TVET Teachers' Competency Development (2021-2025) is a prime example. China's national TVET teacher development activities include the yearly best ICT-supported teaching practices competition. This tournament is held at the institutional, regional, and national levels.

Research by Wang and Han (2017) and Han and Wang (2021) revealed that TVET institutions have a significant role in teacher professional development. These institutions used a system-wide approach with clear goals (e.g., promoting TVET teachers' dual roles as knowledge providers and vocational skills trainers), coordinated programs, and support at various levels. One distinguishing element of Chinese TVET is the institutions. Seek external expertise (e.g., blended learning specialists from higher education institutions) for teacher professional development, particularly during the early stages of blended learning reforms (Han & Wang, 2021; Wang & Han, 2017).

TVET teachers' professional growth is significantly influenced by institutional factors, as evidenced by their experiences and successes.

Similar to this, a review of Training Competencies for Malaysian Mechanical Industries' Continuing Professional Development (CPD) was conducted in Malaysia to produce highly skilled workers who will enhance organizational productivity in high-income countries and improve customer satisfaction (Zeti et al., 2018). The researcher noted that there was a change in Malaysia, which made them come up with a review. For that matter, it is possible that after the review, the situation improved. By focusing on the review in Malaysia, it is important that developing countries, including Uganda, may also need such a review. Gaps: the TVET system in Malaysia is different from that in Uganda, and trainees who joined are also different.

In a similar vein, the Queensland Academy of Teachers in Australia created the Continuing Professional Development (CPD) Policy and Framework to outline the requirements for registration renewal and recognize the significance of teacher participation in CPD (Hang, 2019). Fortunately, similar arrangements are underway in Uganda. The TVET subsector developed the TVET policy in 2019 and the TVET Act 2025, which advocates for compulsory and mandatory CPDs for TVET trainers to enable them to keep updated with ongoing advancements in technology and the renewal of their practicing licenses. From the perspective of Uganda, the major intention was to create employer-led TVET. At the same time, the arrangement is intended to strengthen public-private partnerships and address the quality of TVET trainers. The gap between this study and Hang's (2019) study is specific to the renewal of registration, and for Uganda, it is holistic. That is the gap that prompted the researcher to undertake this study.

From a more advanced perspective, and significantly different from other countries, there are three categories of in-service training in South Korea: qualification training, general training, and special training. INSET credentials are used to maintain and promote credentials. General INSET ensures professional and personal development in selected areas. Her INSET refers to her return to work in her professional role (i.e., librarian, school nurse, counsellor, etc.) (Hang, 2019). According to researchers, South Korea appears to be lending a hand to many countries when it comes to CPD.

In this regard, Thailand's educational reform now acknowledges the value of ongoing professional development for teachers to keep up to date on their knowledge and abilities and to successfully enhance their trainer ability. They also acknowledge that successful leadership is required in schools to direct, oversee, and assist educators in bringing about these kinds of improvements (Hang, 2019). Thankfully, his TVET reforms in Uganda demonstrate the need for providing TVET trainers with upskilling, reskilling, and upskilling training.

One of the goals of research carried out in South Africa was to evaluate the roles and responsibilities of important stakeholders. The findings demonstrate that explicit and strict adherence to the duties and responsibilities of all relevant parties is necessary for CPD to continue as a viable and essential component of local teacher development. It was completed. Depending on the current educational frameworks in each nation, the actors engaged may vary (Mwila et al., 2022). The researcher wholeheartedly concurs that including stakeholders in the creation of his CPD for VET trainers allows for the contribution of numerous ideas and the insight of creative individuals.

Comparably, a study was conducted in Ukraine to find out how to raise the standard of continuing education by updating the curriculum, developing and implementing

innovative teaching techniques, considering local educational customs, and following new European educational guidelines and concepts (Valentina et al., 2022). Theoretical and methodological investigations (Valentina et al., 2022) led to the proposal of mechanisms based on adult learning characteristics, masculine learning principles, and information technology. The efficacy of andragogy education in curriculum creation is enhanced by this process. To provide indications of the viability and efficacy of state support for andragogy education, more investigation is required. According to the researchers, Ukraine takes a different tack than other nations in that it places a greater emphasis on sponsoring andragogy education. The appeal of financing andragogy education is in its focus on goal setting, problem-solving, and hands-on learning.

The study entitled "Current Status of TVET Teachers' Continuous Professional Development Practice in Case of Addis Ababa, Ethiopia". The study finding points out that TVET instructors benefit from various forms of continual professional development. Most teachers at TVET College and Institute have ongoing professional development opportunities. The study found that various forms of CPD are necessary to improve student results. TVET teachers cannot effectively support and motivate students if their professional growth is not documented. This study suggests that CPD programs should be tailored to meet the requirements of instructors and increase student results over time. The results of the TVET College and Federal TVET Institute questionnaires, as well as teachers' responses, suggest that need-based CPD activities are beneficial for improving teachers' practice and student outcomes in Ethiopia (Negash et al., 2024).

Technical vocational education and training (TVET) quality is significantly influenced by the professional skills of the TVET trainer (Gamble, 2013). A competent TVET trainer of trainers equips TVET instructors with the knowledge, skills, and mind-set

required to get trainees ready for the workforce. According to Arineitwe et al. (2021), the calibre of TVET trainers has a significant impact on the calibre of education. This is evident in the way they are prepared, present, and evaluate their students during the teaching and learning process. This implies that for the assistance to be effective, it needs to be grounded in the professional competencies needed for TVET trainers to carry out their duties and have a thorough awareness of the learning requirements of TVET instructors. It has been shown that all of these are improved by ongoing professional development (Barrera-Pedemonte, 2016).

A country that prioritizes the quality of its TVET educators will experience the greatest increases in learning outcomes when compared to other investments in learning enhancement. It has been demonstrated that TVET trainer ability matters more than other factors like the technical and vocational institute, class size, and available physical facilities (Umesh & Schuster, 2014). It is also recognized that the success of educational reform and the effectiveness of educational policy depend on the professional development of TVET trainers (Muyingo, 2019).

According to Njenga (2018), the research indicates that certain VET teachers in Kenya may not possess the necessary teaching abilities and knowledge, which might account for some of the ongoing issues faced by TVET teachers. As a result, Kenya's VET instructors have a critical need for ongoing professional development (CPD). According to the report, a dearth of supporting legislation contributes to Kenya's irregular ongoing professional development (CPD) for VET teachers. Several important Kenyan education policy papers have been analysed, and the results show that the policies intended to direct teachers' ongoing professional growth are unclear. According to the multi-stream paradigm, policymakers' lack of specific and practical policy alternatives to advance and maintain the CPD is the root cause of the policy gap. A variety of policy

choices are thus suggested by a survey of the research on effective professional development. Among these are policy frameworks that are supportive rather than prescriptive and that make it possible for teachers to make creative decisions about what and how they learn. Furthermore, combining professional learning with professional advancement is suggested. To help with the creation of a workable policy framework, an empirical analysis of the present learning practices of VET instructors and the viability of suggested remedies is required.

Relatedly, the study intended to investigate the continuing professional development practices of TVET instructors in Kenya. Based on its results and reviewed literature, the research intended to identify and recommend strategies for ensuring long-term effective TVET teacher CPD in Kenya. The study used a concurrent mixed methods approach, including a questionnaire survey and oral interviews with instructors from six technical and vocational colleges in Kenya's Nairobi metropolitan area. Based on the collected data, the study describes TVET instructors in Kenya and their characteristics, such as age and gender distribution, first-teacher education, past job experiences, and career phases. It also assessed how TVET instructors in Kenya conceptualize TVET instruction and TVET teacher professional development (Njenga, 2023).

Furthermore, the study examined how these perceptions impact TVET teacher CPD practices, such as the decision to engage in CPD, the material to learn, and the method by which it is learned. As a result, the study described TVET teacher CPD practices in terms of the material teachers learn and the learning techniques they utilize, finding the most often covered curriculum categories as well as the most and least common learning methods. The study established four orientations towards TVET teacher CPD in Kenya by collecting the reasons with the corresponding learning techniques, CPD content, CPD scheduling, and teacher characteristics. The findings go into further depth. By the

study's ontology, one conclusion made from the foregoing findings was that, while "observable" acts characterize practices, the intentions underpinning the practices, as well as ideas of what is being done and how it should be done, are intrinsic elements of the practices. Changing, or at least enhancing, behaviour necessitates a shift in the underlying goals and concepts that drive them.

This led to the proposal for a reassessment of the courses that TVET teachers go through during their training to enable new TVET trainers to build a broader picture of TVET trainers' professional competency and the routes through which they can enhance their professional skills. Similarly, it was recommended that practicing TVET teachers be supported to critically examine their conceptions of professional competency and professional development, as well as being sensitized to the value of pedagogical content knowledge and the avenues available to them in developing subject-specific teaching skills (Njenga, 2023).

Another option for changing existing conceptions and purposes of teacher CPD was to change the set of rewards and incentives instructors experience such that the incentives and rewards imply and lead to aims and conceptions that promote more successful TVET teacher CPD practices. This may be accomplished by examining the regulations and professional norms that govern instructors and, in this case, by building a policy framework for TVET teacher CPD. TVET teacher CPD methods were also shown to be impacted by teacher characteristics, specifically learning requirements. This resulted in the proposal to connect CPD programs with teacher characteristics and ensure accessible learning opportunities (Njenga, 2023). To ensure that CPD programs correspond with teachers' learning requirements, continuous monitoring and review of CPD programs and accessible learning opportunities is advised.

TVET teacher CPD practices were also shown to be impacted by contextual variables, particularly institutional practices. To guarantee that institutional procedures promote successful TVET teacher CPD practices, a comprehensive TVET teacher CPD policy was proposed. The study also investigated and highlighted the issues and limits that come with TVET teacher professional development in Kenya. The obstacles and limits were linked back to limitations in various types of capital that characterize Kenya as a poor country. One recurring limitation is the absence of a suitable institutional structure to facilitate TVET teacher CPD. This supports the preliminary notion that absences impact behaviour and results. This finding bolstered the conclusion that a policy for the ongoing professional development of TVET instructors in Kenya is necessary. The study's suggestions focus on the creation of a comprehensive policy framework for TVET teacher CPD, as well as a review of associated policies. Drawing on the study findings and the wide literature on teacher CPD, numerous ideas to improve TVET teacher CPD in Kenya were identified and developed into policy proposals. As a result, the study fills a knowledge vacuum in TVET teacher CPD practices in Kenya while also making practical recommendations to enhance such practices. While certain limitations were found, such as the study's narrow scope, they were not considered fatal to the results reached. Future research, employing a larger number of TVET practitioners and using a broader range of data-gathering methodologies, was advised. Future research on the effective techniques for assisting TVET instructors in developing a critical awareness of their professional competency, as well as the consequences of such knowledge on their ongoing professional development practices.

In addition, continuous professional development (CPD) is crucial for Technical and Vocational Education and Training (TVET) institutions in Kenya to deliver higher-quality training. 75% of TVET instructors who participated in CPD programs reported

that their capacity to instruct and apply knowledge had much improved, according to Trevelynn's (2022) research. The study underlined the necessity of CPD activities tailored to TVET instructor's demands, such as developing practical technical skills and innovative teaching techniques, if we wish to enhance TVET. The need for targeted professional development that reacts quickly to the shifting demands of the job market is emphasized by this study.

Further research by the Njenga highlighted the impact of CPD on curriculum alignment with industry standards. According to the study, 68% of TVET institutions that partnered with industry stakeholders for CPD programs saw a marked improvement in the relevance of their curricula. These partnerships ensured that the training provided was up to date with current industry practices, which in turn enhanced the employability of graduates. The Kenya Institute of Curriculum Development (KICD) study also found that instructors who participated in CPD programs were 60% more likely to incorporate innovative teaching methods and technologies in their classrooms, thereby improving the overall learning experience for students.

According to a study by Oviawe and Uddin (2020), 80% of TVET teachers in Nigeria who took part in CPD programs reported significant improvements in their technical skills and teaching approaches. The study found that CPD programs that focused on real-world, hands-on training were very successful in improving TVET teachers' capacity to teach, underscoring the importance of regular and regulated CPD activities in keeping instructors up to date with industry changes and technological advancements.

According to research by Ingwu et al. (2019), student performance and satisfaction increased by 70% at TVET colleges that adopted complete CPD programs. According to research undertaken by the National Board for Technical Education (NBTE) in

Nigeria, CPD programs that incorporated interactions with business partners were particularly useful. This cooperation made it simpler to align industry demands with TVET courses, ensuring that the education was current and appropriate. The survey also showed that, at 65% of the schools that used CPD programs, graduates' employability increased dramatically, highlighting the direct effect of CPD on student outcomes.

Another significant piece of research that looked at the challenges and successes of CPD in TVET schools in Nigeria was carried out by Ngor and Tambari (2017). The poll found that although 60% of TVET teachers saw the value of CPD programs, only 40% of them routinely had access to them due to practical and financial constraints. Despite the challenges, the survey discovered that CPD participants reported a 50% increase in their confidence and effectiveness in delivering technical training. The researchers recommended increasing funding for CPD programs and establishing rules to ensure that all TVET instructors have access to ongoing professional development in order to overcome these challenges. The study also highlighted the need for government and private sector collaboration to create sustainable CPD programs that can adapt to the changing demands of the workforce.

The quality of education in any country is impacted by the quality of its faculty. No country is better than the quality of its teachers, according to Government White Paper 1993. Teachers can enhance their subject-matter competence, appropriate teaching methods, and professional values and attitudes via continuous professional development (CPD) (Cabahug et al., 2024). Maintaining, improving, and developing one's knowledge, abilities, and character traits to carry out technical and professional tasks efficiently is another aspect of professional teaching (Friedman & Phillips, 2004).

The main goal of TVET trainers' ongoing professional development is to maintain the effectiveness of their education, which in turn supports students' social and individual learning outcomes (Sahagun & Matriano, 2019). Newly employed TVET students not only assist professionals in remaining up to date on developments in their field, but they also develop new skills and talents. A person's career path or future job may be advanced by ongoing professional development (Mulhall & Campbell, 2018). The course series or the subject matter knowledge, training, and practice should be the focal point of ongoing professional development (Samuel et al., 2021).

Trainers also develop professional attitudes and integrate the significance of their job and what is considered important. Through continuous professional development, TVET trainers can also empathize with their students (Karekezi, 2022). One of the many learning opportunities available to trainers in TVET schools is a reflection on current practices and outcomes. CPD may involve formal or informal encounters, either one-on-one or in groups, with colleagues and experts (Ismail et al., 2024). Introspection, observation, coaching and monitoring, and getting feedback from knowledgeable individuals or colleagues are additional successful methods for improving skills and knowledge (Williams & Menendez, 2023).

Investing in the quality of teachers yields the best learning outcomes when compared to other aspects of investments that are meant to increase learning. The competency of instructors is more significant than factors like class size, school location, and the availability of learning resources (Murchan, 2018). Teachers' professional development is thought to have a major mediating role in the efficacy of educational concepts and good teaching methods (Desimone, 2009).

According to Řtefan et al. (2023), continuous professional development equips TVET trainers with the skills they need to solve educational difficulties while maintaining and enhancing quality, regardless of the degree of quality. Trainers can better handle the stress and frustrations they have when delivering TVET education by upholding a high standard of professionalism. Through professional advancement, competency control, and keeping the public informed, CPD assists educators in staying current and flexible (Friedman, 2023). The finest operational pedagogical techniques are implemented by trainers in TVET schools thanks to ongoing professional development connected to pedagogy. In TVET schools, teachers who have participated in different forms of ongoing professional development employ a range of instructional techniques (Hendriks et al., 2010).

Enhancing teaching quality in Rwanda requires TVET trainers to participate in Continuous Professional Development (CPD); mentoring for new teachers is advised to close this gap. It is crucial to improve TVET trainers' pedagogical competency, which includes keeping up with emerging technology, developing critical thinking abilities, and enhancing communication. All things considered, funding CPD for TVET teachers in Rwanda is crucial to raising the standard of vocational training.

Continuing Professional Development (CPD) for TVET trainers is widely recognised as a critical element in maintaining and enhancing trainer competences, yet the current landscape reveals considerable variability in its implementation. In Kenya, Njenga (2024a) observed that CPD remains heavily skewed toward Subject-Content Knowledge (85%), leaving critical areas like Pedagogical-Content Knowledge (26%) and General Pedagogical Knowledge (30%) grossly underrepresented. ICT skills and student assessment, emphasized by 84% and 82% respectively, reflect a somewhat technical tilt in CPD priorities, while essential domains such as curriculum theory,

guidance and counselling, and school management continue to receive minimal focus (Njenga, 2024a). This mirrors patterns in Rwanda, where Philogene et al. (2024) documented that only 31.1% of TVET teachers had received formal training by 2021/22, leaving a staggering 68.9% without proper pedagogical grounding, especially among those from technical fields. In-service CPD in Rwanda is further hindered by barriers of time, cost, and weak private sector engagement, evidenced by the paltry certification rates with only 21 trainers certified at the senior level by 2022 and the complete non-implementation of the Master TVET Trainer course (Philogene et al., 2024). Similarly, in Ethiopia, Negash et al. (2024) revealed stark under-participation rates: less than 40% of teachers engaged in any CPD modality, with participation in subject-method workshops at just 24% and mentoring at a mere 29%. Despite low participation, the perceived benefits of CPD remained high, with professional reading (86%), peer dialogue (81%), and observation visits (78%) receiving positive impact ratings (Negash et al., 2024). Yet, the absence of structured CPD frameworks and systemic support mechanisms remains a recurring barrier across these contexts.

While formal CPD practices such as workshops, diplomas, and degree programmes remain dominant, informal and self-directed learning approaches are increasingly common among TVET trainers, albeit with varied effectiveness. Njenga (2023a) found that Kenyan vocational teachers frequently resort to self-paced learning strategies such as reading subject-matter texts (75.2%) and watching educational videos (66.5%), though engagement with academic journals remains limited at 20-26%, indicating a narrow exposure to research-backed pedagogies. Practice-based methods like written reflections are particularly rare, practiced by only 18.2% more than twice, and Lecturer Industrial Attachments (LIAs), despite being deemed important by 90% of respondents, had been attended by just 34.7%, with over a third of teachers never participating due

to cost and policy gaps (Njenga, 2023b). The low uptake of collaborative CPD activities, such as mentoring (49.4%) and co-teaching (45.3%), further reflects systemic inertia in embedding peer-learning cultures (Njenga, 2023b). In South Africa, Hlatjwako et al. (2025) noted that only 8% of TVET lecturers possess both trade and pedagogical credentials, perpetuating the divide between industry experiences and teaching skills. Coaching and mentoring, proven effective elsewhere like Malaysia and Nigeria, remain underutilized despite their potential to bolster pedagogical and professional competences (Hlatjwako et al., 2025). Meanwhile, in Ethiopia, over 70% of teachers reported having no access to mentoring or peer coaching, stifling the sustainability of CPD benefits (Negash et al., 2024). Such trends suggest that while teachers recognize the value of CPD, the modes of delivery and institutional support remain fragmented and insufficiently aligned to evolving educational demands.

The content and design of CPD programmes also face critical gaps, particularly in aligning with technological advancements and pedagogical innovation. Diao et al. (2024) emphasized that TVET teachers are increasingly challenged by the dual demands of adapting to ICT-driven transformations in education delivery and keeping pace with the rapid technological shifts in the workforce. Yet, digital-pedagogical training is insufficient, with existing efforts remaining tool-centric rather than learner-centered, often neglecting multigenerational learning needs and green economy competences (Diao et al., 2024). Njenga (2022*a*) similarly noted that while Kenyan teachers prioritize CPD in new workplace technologies, school management, and ICT skills, there is a paradoxical undervaluation of pedagogical training despite self-reported deficiencies in teaching methods. The misconception equating subject content mastery with teaching effectiveness contributes to this gap, compounded by a lack of subject-specific pedagogy in Initial Teacher Education curricula (Njenga, 2022*a*). Addressing this,

Hasanah et al. (2025) showcased the value of diversified CPD delivery modes, including competency-based training, industry internships, digital skills workshops, and classroom action research, which significantly enhanced teacher performance, accounting for 35% of performance variance. However, systemic barriers such as financial constraints, time limitations, and policy deficiencies continue to inhibit comprehensive engagement, as highlighted by Chuprynko (2020), who found that only 24% of teachers met the 30-hour annual CPD benchmark set by the Ministry, with participation declining from 63% in 2015 to 61.5% in 2018 due to lack of incentives (64%) and irrelevant program content (59%).

Moreover, socio-demographic factors and institutional policies deeply shape CPD participation and its impacts. Njenga (2024*b*) identified that 77% of vocational teachers in Kenya cite cost as the most significant barrier to CPD, with time limitations and lack of employer support further complicating participation, particularly for teachers in remote areas or those without ICT access. Gender and career stage also influence these dynamics, where male teachers and those with dependents face stronger systemic barriers, while late-career teachers grapple with personal constraints such as age and qualification gaps (Njenga, 2024*b*). Women are notably less likely to receive institutional funding, exacerbating participation inequities (Njenga, 2024*b*). In South Africa, Hlatjwako et al. (2025) revealed that the sector suffers a recruitment dilemma: industry professionals lack pedagogical skills, while academics have minimal industry exposure, a challenge compounded by underdeveloped coaching and mentoring systems. Similarly, Negash et al. (2024) pointed out that Ethiopian TVET teachers lack structured CPD frameworks, and over 70% have no access to mentoring or peer coaching, leading to fragmented and unstained competency development. Calls for policy reforms are growing louder, advocating for national CPD frameworks, financial

support mechanisms, workload reductions, and formalized CPD structures to bridge the gap between professional development efforts and meaningful career progression (Chuprynko, 2020; Njenga, 2024*b*).

However, despite the extensive body of research on CPD for TVET trainers, critical gaps remain that warrant the current study, particularly in the context of Uganda's TVET Master Trainers. Across multiple studies (Hasanah et al., 2025; Hlatjwako et al., 2025; Njenga, 2022a; 2023a; 2023b; 2024a; 2024b; Negash et al., 2024), there is a consistent omission of TVET master trainers, whose strategic role in cascading skills, mentoring, and leading pedagogical innovation remains underexplored. These studies also share a common limitation of geographical gap; whether in Kenya, Ghana, Ethiopia, Indonesia, South Africa, or Turkey; making their findings less applicable to Uganda's distinct BTVET governance, donor dependencies, and rural-urban disparities (Yaqub et al., 2020; Philogene et al., 2024; Chuprynko, 2020).

Methodologically, several studies used only qualitative methods without quantitative validation (Philogene et al., 2024; Njenga, 2023a), while others failed to conduct outcome-based evaluations to measure competency gains post-CPD (Njenga, 2024b; Hlatjwako et al., 2025). Many studies lack validated TVET master trainer's competency frameworks and did not cover emerging CPD delivery modes, such as blended learning, micro-credentialing and VR (Hasanah et al., 2025; Njenga, 2023b).

Furthermore, informal learning avenues like peer coaching, communities of practice, and industry attachments, though acknowledged, remain under-theorized and unintegrated into formal CPD policy and design. To address these gaps, the current study focused specifically on Uganda's TVET master trainers, using a mixed-methods approach to capture both qualitative insights and quantitative measures of competency

gains. It also sought to develop and validate a context-specific TVET Master Trainers competency framework, which including blended learning and micro-certifications, and map mentorship and industry collaboration structures suitable for Uganda's unique education and training landscape.

2.2.2 Strategies for identifying training needs for TVET master trainers

Identifying the training needs of TVET trainers is a critical first step in designing effective Continuous Professional Development (CPD) programmes, yet existing strategies remain uneven, fragmented, and context-specific across different countries. In Ghana, Yaqub et al. (2020) found that 85% of trainers pursued CPD driven by personal interests rather than structured institutional priorities, a reflection of the absence of a systematic Training Needs Analysis (TNA) framework. Compounding this issue, 83.4% of respondents reported a lack of formal evaluation mechanisms for CPD before, during, or after implementation, weakening the feedback loops necessary for refining trainer development interventions.

Similarly, the Royal Civil Service Commission (2019) in Bhutan highlights that most TVET systems lack a standardized competency framework, resulting in irregular or absent TNAs. The Bhutanese experience mirrors a broader systemic weakness, where training programmes are perceived more as rewards or incentives rather than targeted interventions aligned with actual competency gaps. This misalignment is aggravated by limited collaboration between TVET institutions and industry players, leaving trainers without exposure to the evolving labour market demands and necessary technological skills for Industry 4.0. These gaps reveal the critical need for more structured, industry-responsive, and continuously updated approaches to assessing TVET trainers'

development needs, especially in resource-constrained settings where institutional capacity is already stretched.

The process of developing TVET requires qualified, competent, and efficient VET trainers to perform the tasks. Based on these requirements, one of the key aspects of TVET transformation is the TVET trainer's level of competence in terms of general TVET skills (Abdullah et al., 2019). This is because competencies reflect the specifications of the teaching profession, including competencies that enable educators to successfully organize educational activities.

Benchmarking against worldwide standards established by the UNESCO-UNEVOC World Centre is an effective global technique for identifying training needs. Benchmarking compares existing trainer competencies to global best practices to identify gaps and areas for improvement (UNESCO-UNEVOC, 2019). This strategy ensures that trainers' skills are in line with internationally recognized skills and knowledge; hence, it encourages high-quality technical and vocational education. Comparative analysis frequently involves comparing curricula, trainer qualifications, and industry requirements abroad.

In North America, research was done to find out how well-equipped and eager TVET trainers were to integrate employability abilities into their programmes (Wan Fadzilah et al, 2022). In the workplace or training institution, trainers are essential to the execution of technical and vocational training programmes. It is anticipated that trainers would be essential in helping trainees acquire the employability skills they require. The results showed that both seasoned and inexperienced trainers who took part in the study showed high levels of drive and proficiency in incorporating employability skills. The findings indicated that greater growth and performance of her VET graduates in the

workplace will come from a VET trainer's readiness to combine competencies and employability skills. Curriculum review enhances trainers' competency about VET student learning outcomes based on attitudes, knowledge, skills, and institutional support, which helps to increase the employability and productivity of VET graduates.

The comprehension of engaging training by TVET trainers was the subject of another study. This study was carried out in Lahore, Pakistan, at several TVET institutions (Gouhar et al., 2021). The data analysis showed that most trainers thought that activity-based learning and participant engagement were essential components of successful classroom participation. Additionally, it was discovered that for trainees to enhance their learning experience, a rewarding training atmosphere is required. Several recommendations were made considering the results, including a stronger emphasis on enhancing online training and delivery methods. The results were examined from several angles.

The combined school-workplace learning model (2+1 System) established by Lim (2009) in Korea is an integrated system that blends classroom-based instruction with actual workplace training, with the goal of meeting the specific training needs of TVET teachers and learners. This concept emphasises the significance of matching educational curricula with real-world industry requirements through a coordinated collaboration between educational institutions and businesses. When it comes to determining training needs, the 2+1 method acts as a strategic framework by providing ongoing feedback loops between trainers, industry practitioners, and students, ensuring that training content remains relevant and responsive to current skill demands.

Regular assessments and communication within this paradigm help to identify gaps in trainer competencies, knowledge, and pedagogical techniques, allowing for focused

professional development interventions. For example, feedback from industry partners on growing skill requirements can be directly integrated into trainer capacity-building programs, resulting in a dynamic and responsive training ecosystem (Lim, 2009). This method fosters a collaborative environment in which training requirements are continually identified and addressed with the active participation of industry stakeholders and educational providers, thereby improving the relevance and quality of vocational education.

According to Lim (2009), Korea's contract-based training model is a strategic strategy that comprises formal agreements between educational institutions and industry partners to cooperatively identify and solve specific training needs. This concept emphasizes the value of industry contracting for personalized training programs that directly address the workforce needs of participating companies. These contracts allow industry stakeholders to identify their present and future skill requirements, which serve as the foundation for building targeted training modules supplied by vocational institutions. The concept fosters a demand-driven framework, which ensures that trainers concentrate on building skills that are immediately transferable and relevant to industrial practices. Furthermore, the contractual connection promotes continual communication and feedback loops between trainers and industry representatives, allowing for constant evaluation and adjustment of training content and delivery techniques. Such coordination guarantees that training programs remain in line with industry standards and technical improvements, thus increasing trainee employability and industry competitiveness (Lim, 2009). The contract-based training model promotes a proactive, industry-responsive system for recognizing and meeting training needs through formal agreements and long-term partnerships.

The international cooperation model's technique for identifying training gaps can be effectively applied by encouraging collaborative assessments based on shared experiences, information transfer, and comparative analysis across countries or institutions. This methodology allows for a more comprehensive awareness of contextual training shortages and goals through collaborations between donor and recipient nations, as well as between international organizations and local institutions. It stimulates stakeholder interaction at several levels, ensuring that training requirements correspond not only with local goals but also with global standards and best practices. Furthermore, the paradigm emphasizes joint learning and capacity building, enabling the co-creation of relevant and durable training programs. According to UNESCO (2018), international collaboration in education and training improves the relevance and quality of capacity development by encouraging inclusive conversation and using varied knowledge to identify and solve skill gaps more effectively.

The school-based apprenticeship or traineeship model, as used in Western Australia and Queensland, offers an organized and practical method of addressing training needs by combining formal education and real-world industry experience. This strategy allows students to work part-time while finishing their secondary education, resulting in a direct feedback loop between educational institutions and employers. This collaboration identifies training needs based on the changing demands of the workplace and the specific skills required by industry partners. This alignment guarantees that curriculum creation and training delivery are informed by actual workforce requirements, boosting students' employability and responsiveness to the education system. As highlighted by the Government of Western Australia (2014) and the Queensland Government (2019), school-based apprenticeships and traineeships facilitate early career exposure, enabling tailored training that meets both learner aspirations and labour market needs.

Engaging with industry stakeholders at the regional level helps to inform training needs assessments. Regular interactions with employers, industry associations, and sector experts assist in identifying increasing skill requirements and capabilities that trainers must teach (World Bank, 2020). These consultations, which might take the shape of focus groups, polls, or workshops, allow for two-way communication between trainers, industry representatives, and policymakers. This technique ensures that trainers remain current with regional industry trends and technical improvements.

Participatory techniques, such as focus group talks and participatory rural appraisal (PRA), promote interaction among trainers, trainees, and other stakeholders. These strategies allow for the democratic identification of gaps, building on local knowledge and experiences (Karanja & Lwoga, 2018). In East Africa, participatory needs evaluations are especially effective in community-based TVET contexts, ensuring that training is relevant and context-specific.

Workplace observations are practical techniques for determining on-the-job trainer competencies and identifying deficiencies. Supervisors and industry mentors can assess trainees' performance in real-world scenarios, offering significant insights into their practical skills and pedagogical techniques (ILO, 2021). This strategy emphasizes ongoing professional development that is adapted to current workplace demands.

Standardized surveys and questionnaires are cost-effective ways to collect data on trainers perceived training needs. These tools can be deployed nationally or regionally to gather quantitative and qualitative data on skill gaps, confidence levels, and professional development preferences (OECD, 2018). Data from these instruments helps to guide targeted training activities and policy decisions. The use of training needs assessment (TNA) frameworks creates a systematic procedure for finding gaps in trainer

competencies. This entails assessing current skills, future employment requirements, and organizational objectives (Mann et al., 2019). Implementing TNA ensures that training programs are structured to meet strategic skill development needs at the global, regional, and local levels.

The MoES Training Needs Assessment (TNA) 2022 report conducted in 8 TVET institutions revealed that 70% of the managers and instructors did not have industrial experience. Practical training is not conducted to the extent expected to prepare graduates for the world of work and fails to demonstrate practical CBET preparation, skills delivery, and assessment, leading to a missing link between institutions and labour market skills requirements. The causes of unemployment among graduates from the TVET institutions include a lack of appropriate skills and industrial-based competencies to carry out specified job designs and poor problem-solving approaches resulting from students' inability to make seamless transitions between theories and practices. The apparent lack of skills and competencies among graduates of higher institutions has been traced to the deployment of lecture teaching methods, which are characterized by theorization that does not cater to diverse learning styles. To reverse the above trend being experienced by students in TVET institutions poses a need to assess TVET CBET curriculum implementation in TVET technical and vocational training institutions.

Analysing current curricula, teaching resources, and assessment systems assists in identifying subject gaps and obsolete pedagogical practices. Curriculum reviews, often undertaken by expert panels, demonstrate whether teachers' expertise is up to date with industry standards and technology advancements (EFA Global Monitoring Report 2015). Revising the curriculum ensures that trainees are armed with appropriate content and approaches.

The monitoring and evaluation of previous training programs provide insights into their efficacy and identify areas that require extra attention. Feedback from previously trained teachers can highlight existing gaps or developing needs (World Bank, 2019). Continual M&E cycles enable dynamic changes and improvements to capacity-building programs.

Implementing peer review mechanisms and professional communities of practice enables trainers to reflect on their practice. Peer evaluations assist in identifying opportunities for development and cultivating a culture of continuous learning (UNESCO, 2021). Establishing such platforms encourages continuous needs evaluation and professional development among the training professionals.

The data analytics and learning management systems (LMS) can help identify needs by digitally tracking trainer engagement, performance, and feedback. Advanced analytics can identify patterns and anticipate future skill improvement (OECD, 2020). This technology-driven approach encourages proactive, evidence-based decision-making when developing training programmes.

Musimenta and Ssentamu (2019), found that training needs assessment practices and human resource performance in public universities in Uganda. The findings suggested that questionnaires, interviews, and performance evaluation reviews were used to identify training needs, with the conclusion that a combination of performance assessments and employee self-assessments effectively identified gaps. The study did not examine the role of stakeholder discussions or external industry input in formulating training needs evaluations.

Adu and Ngibe (2019), training needs analysis for teachers: Implications for staff development at a South African University. Findings indicated surveys, interviews**,** and document analysis as essential strategies. Recommended participatory approaches

where staff themselves articulate their perceived needs. Research gap, the study did not explore the integration of competency-based analysis frameworks for training needs identification. Mugisha (2020), training needs assessment and performance of academic staff in Mbarara University of Science and Technology, Uganda. Findings revealed that gap analysis between current and required performance was widely used. Suggested the need to strengthen stakeholder consultations to ensure training relevance. Research gap was limited consideration of the labour market and technological changes in identifying training needs.

Oketch and Mwebaza (2022), strategies for identifying teacher training needs in implementing competency-based curricula in Uganda. Findings emphasised classroom observation, learner performance analysis, and participatory workshops as effective strategies. The research gap did not evaluate the role of national curriculum reforms and policy directives in guiding training needs assessments.

Kimuli (2023), training needs assessment strategies and teacher performance in Technical and Vocational Education and Training institutions in Uganda. Finding revealed that workshops, job task analysis, performance appraisals, and focus group discussions effectively identified needs among TVET instructors. The research gaps did not integrate emerging digital tools and AI-supported assessment platforms for real-time training needs identification.

In response to such gaps, several countries have adopted more formalized competency frameworks and data-driven TNA strategies, albeit with varying degrees of success. Wan Ngah and Buniyamin (2021) illustrate Malaysia’s use of the Curriculum Development Based on Ability Structure (CUDBAS) method, which profiles trainers' competences through structured self-assessments, supervisor validations, and expert-

validated ability checklists mapped against National Occupational Skills Standards (NOSS). This, further, is supported by Malaysia's centralized online TNA system that spans 18 TVET agencies and covers around 30,000 instructors, automating gap analysis and recommending tailored CPD interventions.

Similarly, Ismail et al. (2018) document Malaysia's four-round Delphi method that established 98 trainer competences across personal traits, pedagogical skills, and technical innovation, later codified into national standards. These comprehensive systems are further strengthened by compulsory industry attachments and digital profiling via MOOCs and micro-credentials. However, despite these advancements, significant bottlenecks still exist which include: fragmented data systems across multiple ministries, limited capacity for workplace analysis among trainers, and resource constraints that stifle continuous in-service monitoring (Ismail et al., 2018; Wan Ngah & Buniyamin, 2021). These persistent structural inefficiencies underscore the need for integrated, continuous, and industry-validated TNAs, something that current systems, even in relatively advanced TVET ecosystems like Malaysia, have yet to fully operationalize.

Performance appraisal mechanisms have also been proposed as a route for identifying training needs, but these systems often underperform due to design and implementation flaws. In Kenya, Komen and Ong'injo (2024) observed that despite 68% of TVET staff setting performance targets, only 29% were appraised across 204 institutions, and a meager 1.1% were placed on improvement plans. Barriers such as inadequate appraisal training, insufficient time, and poor ICT infrastructure weakened the appraisal process, while unclear reward systems and ineffective feedback mechanisms further eroded their utility in guiding CPD.

Similarly, Paterson et al. (2024*a*) report that South Africa's Integrated Quality Management System (IQMS) remains largely bureaucratic, focusing on compliance rather than genuine competency development. Appraisals are often viewed by lecturers as perfunctory exercises linked to salary increments rather than substantive opportunities for growth. Furthermore, CPD proposals emerging from Personal Growth Plans (PGPs) often go unfulfilled due to underfunding, poor policy coherence, and fragmented leadership commitment (Paterson et al., 2024*a*). However, Paterson et al. (2024*b*) present an evolved IQMS framework incorporating self-assessments, peer reviews, and supervisory feedback to inform Personal Growth Plans (PGPs), with the added benefit of digitized systems improving administrative efficiency by 30%. Despite this, the lack of robust follow-up mechanisms to track CPD impact on student outcomes, weak work-integrated learning (WIL) provisions, and varied peer feedback cultures have curtailed its transformative potential (Paterson et al., 2024*b*). Together, these studies suggest that performance management systems in the TVET sector are poorly aligned with the vocational education mandate, and without fundamental redesign, they are unlikely to serve as effective tools for systematically identifying and addressing training needs.

Meanwhile, studies from Sub-Saharan Africa like Rwanda and Namibia further highlight the contextual gaps in TNA practices. In Rwanda, Kim et al. (2019) conducted a nationwide assessment involving 1,106 trainers and 1,261 students, revealing that while trainers rated themselves highly in instructional planning and classroom evaluation, they scored poorly in educational media use and systematic training needs assessment. The dual-perspective approach of collecting both trainer self-reports and student feedback helped surface practical skill gaps, yet the study's one-off design and short two-month follow-up period limited insights into long-term CPD outcomes.

Similarly, Aloovi and Sisinyize (2024) in Namibia found that 49.4% of TVET managers had not received any CPD in the previous two years, despite holding qualifications over five years old. Critical gaps persisted in fiscal management, policy implementation, and leadership skills such as delegation and emotional intelligence. Both studies underscore a common thread: the lack of sustained, cyclical TNAs and insufficient mechanisms to align training with actual institutional and industry demands. These findings collectively highlight the pressing need for countries like Uganda to design context-sensitive, scalable, and sustainable CPD systems for Master trainers (ToTs), incorporating continuous TNAs, industry engagement, and alternative low-tech solutions for resource-limited environments.

However, despite the diverse contributions of prior studies on TVET trainer development, significant gaps persist that justify the current study. Geographically, most studies, such as Paterson et al. (2024), Ismail et al. (2018), Wan Ngah and Buniyamin (2021), and Zhou et al. (2024), are grounded in contexts like South Africa, Malaysia, and China, leaving Uganda's unique policy environment, decentralized governance, and rural infrastructure constraints largely unexplored. Similarly, while the RCSC (2019) and Kim et al. (2019) frameworks offer insights from Bhutan and Rwanda respectively, they lack direct applicability to Uganda's labor market, multi-sectoral TVET governance, and limited digital reach in rural areas. A recurring gap across studies like Yaqub et al. (2020), Aloovi & Sisinyize (2024), and Kim et al. (2019) is the absence of continuous, real-time TNA systems, with most assessments being one-off surveys that fail to support sustainable CPD feedback loops. Furthermore, studies such as Jafar et al. (2024) and Zhou et al. (2024) emphasize competences for Industry 4.0 but do not propose actionable models for acquiring these skills, especially for Master trainers who require advanced pedagogy, mentoring, and leadership capabilities, gaps also

unaddressed by Ismail et al. (2018) and Wan Ngah & Buniyamin (2021). Many of these studies also rely on digital systems (MOOCs, LMS analytics) unsuitable for Uganda's low-connectivity regions, and overlook practical, low-tech alternatives. Additionally, most fail to integrate direct industry validation of competences, a crucial step for aligning CPD with labour market demands. To address these gaps, the current study aimed to develop a context-specific, continuous TNA-CPD framework tailored for Uganda's Master trainers, incorporating hybrid and offline assessment tools, embedding industry-validated task analysis, and establishing a scalable ToT cascade model supported by regional peer-coaching networks to ensure widespread and sustainable capacity development.

2.2.3 Adoptable innovative strategies for CPD

Innovative adoptable approaches to Continuing Professional Development (CPD) for TVET trainers are increasingly grounded in the Integrated Model of CPD, which combines formal, non-formal, and informal learning avenues into a cohesive professional development system. This shift is critical as instructor training institutions worldwide grapple with the need to equip TVET trainers with dynamic competences that align with rapidly changing industry demands and the Fourth Industrial Revolution (Ismail et al., 2018). Ismail et al. (2018) propose a robust competency framework encompassing personal traits and professionalism, pedagogical skills, and technical innovation competences. These components are foundational yet insufficient if not integrated with adaptive delivery mechanisms. Zhou et al. (2024) build on this by advocating a cyclical three-phase CPD model - design, implementation, and evaluation & reflection - tailored to ensure continuous improvement in training effectiveness. Their model was reinforced by national-level strategies, such as ASEAN's TVET Teacher Standards (2020), which provide universal benchmarks for recruitment and appraisal,

and China's National TVET Innovative Teaching Team initiative that systematically selects and nurtures pedagogical innovators annually (Zhou et al., 2024).

Furthermore, institutional strategies that emphasize industry partnerships, in-house PD, and research-based PD (Zhou et al., 2024) are gaining prominence. Singapore's "No Shelf Life" initiative, where 20% of faculty are embedded in industry projects, exemplifies how such partnerships bridge the often-cited academia-industry gap, while Slovenia's policy mandating 15 days of CPD every three years further institutionalizes the practice of industry-aligned upskilling. Together, these approaches underscore a global pivot in instructor training institutions towards structured, reflective, and industry-responsive CPD ecosystems.

The drive to enhance CPD at instructor training institutions is further complemented by strategies that operate at the individual level, ensuring that trainers are not just passive recipients of knowledge but active participants in their professional growth. Zhou et al. (2024) emphasizes the strategic role of Open Educational Resources (OER) and teacher-led learning communities in fostering continuous, self-directed development among trainers. OER facilitates the creation and dissemination of customizable teaching materials, aligning with both UNESCO and OECD calls for educational democratization. In parallel, learning communities nurture collaborative problem-solving and peer-based innovation, which is essential in fields like TVET where localized, industry-specific knowledge is invaluable.

In addition, Diao et al. (2024) provide a complementary lens by articulating a four-stage professional trajectory for TVET trainers, from Beginner to Expert, underscored by a six-construct competency framework that maps outgrowth in areas such as curriculum improvement, digital competence, and research capacity. For example, a trainer

advances from basic digital literacy to mastering the TPACK framework and designing AI-driven learning experiences, a critical capability given the digital transformation in education. Importantly, Diao et al. (2024) propose practical applications of this framework at national, institutional, and individual levels, advocating for policies that support standardized CPD curricula, gap analysis for program improvement, and self-assessment tools that chart personalized learning pathways. This structured approach is pivotal for instructor training institutions, enabling them to scaffold CPD efforts systematically while accommodating the diverse starting points of their trainer cohorts.

Beyond frameworks, the empirical evidence around e-learning and blended CPD models is reshaping the operational realities of instructor training institutions, especially in contexts with limited resources or geographical constraints. Soklaridis (2024) demonstrates how 81 studies on CPD during the COVID-19 pandemic validated the effectiveness of transitioning from face-to-face to online formats without sacrificing educational outcomes. This digital pivot not only preserved knowledge acquisition but also expanded access, particularly through asynchronous microsites that doubled CPD attendance by enabling 24/7 participation (Soklaridis, 2024). Aryee et al. (2024) corroborate these findings, showing that blended e-learning, where up to 50% of CPD is delivered online, produced equivalent outcomes in clinical competence across diverse settings. Instructor training institutions can adapt these insights to TVET by adopting flipped-classroom CPD models, as piloted by Mandelid et al. (2024), where pre-loaded micro-modules are complemented by facilitator-led workshops emphasizing peer collaboration and real-world application. This approach is particularly pertinent in low-bandwidth settings, utilizing platforms like WhatsApp for sharing micro-videos and embedding Lesson Study cycles for continuous pedagogical refinement. Al-Omary et al. (2024) add further weight by demonstrating that micro-learning chunks not only

bypass data-cost barriers but also enhance pre-workshop engagement by 38% in low-resource contexts such as Ethiopia and Rwanda. These findings collectively affirm that instructor training institutions must embrace modular, digital-first CPD designs that are scalable, context-aware, and aligned with evolving technological landscapes.

Parallel to technological integration, workplace-based CPD models are emerging as transformative for instructor training institutions, particularly those that align professional development with direct industry engagement. Mandelid et al. (2024) and Paryono & Mashod (2025) illustrate how structured peer-coaching triads, industry co-teaching, and attachments within manufacturing plants not only enhance pedagogical skills but also directly tackle the technology lag prevalent in many TVET systems. For instance, Paryono & Mashod (2025) report that annual four-week industry attachments reduced technology lag from 3.2 years to 1.4 years, with 78% of participants incorporating innovative technologies like collaborative robots into their curricula within six months. Moreover, initiatives like converting under-utilized computer labs into Industry 4.0 simulation labs, achieved at a fraction of commercial costs, demonstrate how university-industry CPD partnerships can democratize access to advanced training infrastructure (Paryono & Mashod, 2025).

Al Yakin et al. (2025) further showcase the relevance of specialized micro-credentials, such as their “AI in TVET Assessment” programme, which increased AI proctoring confidence by 48% and reduced malpractice incidents by 31% within one semester. These integrated, workplace-aligned CPD models not only update trainer competences but also foster a sustainable link between education and industry, positioning instructor training institutions as critical nodes in national skills development ecosystems.

Lifelong learning strategy for Continuing Professional Development (CPD) of Technical and Vocational Education and Training (TVET) trainers focuses on the continuous acquisition of relevant knowledge, skills, and competencies required to adapt to changing industry demands and technological advancements. This method includes a mix of formal, non-formal, and informal learning options, such as frequent upskilling workshops, industry placements, digital learning modules, and peer learning communities. It encourages trainers to use reflective practice, define personal learning objectives, and integrate their professional development with institutional and national skill development agendas. Furthermore, including workplace-based learning and engagement with industry ensures that trainers stay current with sector-specific standards and advances.

According to UNESCO-UNEVOC (2020), lifelong learning for TVET trainers is not only about individual competence enhancement but also about contributing to institutional effectiveness and improving learner outcomes, making it a strategic necessity in the context of rapid global technological change and labour market shifts. Lifelong learning is another important concept that focuses on the continuous acquisition of knowledge and skills of TVET trainers. This approach, on the other hand, proposes that instructors embrace learning throughout their lives rather than only for a certain period. Furthermore, vocational education emphasizes lifelong learning. It is beneficial to both TVET teachers and trainees in the long term (Wahyudi, 2022).

Donald Schön (1983) established the Reflective Practitioner Theory, which is a basic framework for the professional development of TVET trainers. It emphasizes the necessity of reflection-in-action and reflection-on-action as instruments for continual improvement. This approach encourages trainers to critically evaluate their teaching techniques, decision-making processes, and interactions with students both in real-time

and retrospectively. In the context of Continuing Professional Development (CPD), the Reflective Practitioner approach helps TVET trainers identify gaps in their pedagogical and technical competencies, adapt to changing industry standards, and improve their experiential learning-based instructional strategies.

This approach enables trainers to become more flexible, inventive, and learner-centred by encouraging ongoing critical self-evaluation practice. Furthermore, it is consistent with the dynamic nature of TVET, which emphasizes adaptability to technological development and labour market demands. Incorporating reflective practice into CPD events ensures that trainers not only keep their skills fresh but also foster professional autonomy and a lifetime learning mentality. According to this theory, TVET master trainers' college should emphasize self-assessment to improve their skills and ensure development. Hence, Instructor Training College TVET trainers can use this skill to critically evaluate and enhance their methodologies.

By fostering a habit of ongoing critical self-evaluation, this theory empowers trainers to become more adaptive, innovative, and learner centred. Furthermore, it aligns with the dynamic nature of TVET, where responsiveness to technological change and labour market needs is crucial. As such, incorporating reflective practice into CPD activities ensures that trainers not only keep their skills relevant but also cultivate professional autonomy and a mind-set of lifelong learning.

The Resource-Based View (RBV) provides a useful paradigm for improving TVET trainers' Continuing Professional Development (CPD) by emphasizing the strategic importance of internal resources in attaining long-term performance and improvement. According to this viewpoint, TVET institutions should regard their trainers as significant assets whose knowledge, skills, and talents are critical organizational

resources rather than merely workers. Effective CPD programs should thus focus on developing and preserving these unique abilities, such as industry-relevant experience, pedagogical creativity, and digital literacy, which are valuable, rare, inimitable, and non-substitutable (VRIN). By investing in structured, long-term CPD aligned with the RBV framework, institutions can ensure that their trainers remain adaptive, competitive, and capable of delivering high-quality vocational education that meets evolving labour market demands. The concept of Resource-Based View (RBV) relates to organizational support that helps several business managers across the globe. The theory explores organizational support and how managers can use their existing resources to improve the competencies of TVET trainers. Therefore, a committed business firm always ensures the professional development of its teachers and employees through proper resource allocation that increases teachers' effectiveness (Arifin, 2017).

Work-based learning (WBL) is the formalization of learning at work, often known as "learning for and from work" (Velzen et al. 2012, 2030). It can also be briefly and broadly defined as "learning that takes place in a workplace, whether as part of a course, while on placement, or independently while an employed worker" (Iredale et al. 2013, 1998), with opportunities for learning occurring in the field, allowing learners to transform their conceptual knowledge into experimentation or practice. WBL has been employed in a range of educational and training programs across disciplines, including nursing, teacher training, vocational training, and engineering (World Association for Cooperative Education 2000; Coll, Taylor, & Nathan 2003). In this study, WBL was delivered to TVET instructors with an emphasis on how to implement and alter ESD teaching and learning tools in their classroom contexts. They also obtained ESD teaching and learning experience by working closely with a researcher.

Professional development strategy: For TVET trainers, continuous professional development (CPD) is a game changer for TVET trainers to enhance their skills, knowledge, attitudes, and attributes. This attitude enhances their learning and that involves participating in various activities to improve knowledge, therefore, TVET trainers can focus on continuous development to improve their abilities and skills and remain effective. According to Sustanto et al. (2021), CPD can be in many forms such as arranging workshops and seminars about TVET trainers, furthermore, it also incorporates virtual classes for professional growth and conferences to showcase skills and knowledge. So, it is important for TVET trainers to ensure the process of CPD to thrive. Moreover, Romy (2021) explains that there are several frameworks for improving the CPD of vocational college teachers. For example, the role of the National Board Certification for Teachers is pivotal in American institutions. Such organizations in other countries worldwide can help to enhance teaching methodologies and practices to embrace better student results.

Project-based learning or Problem-based enhancement of learning: The function of problem-based learning (PLB) is equally important. It promotes active learning and has a big influence on television and electronic engineering. It increases trainees' and TVET trainers' knowledge, as well as their critical thinking skills, to help professional development (Kuncoro & Dardiri, 2017). Furthermore, in addition to problem-based learning, teacher training colleges should emphasize experiential learning, which helps students to learn more. This style of learning allows learners to have direct interaction with their TVET educators and build practical skills. The Rusilowati (2020) asserts that the function of flipped classrooms today is critical in enhancing traditional teaching approaches. For example, it promotes pupils to be more engaged with study materials.

Thus, with video lectures and study materials, students may efficiently use their time and money to tackle complicated problems and learn from the instructor's knowledge.

Administrative support literature shows that TVET trainers should embrace administrative support to improve their professional competence. This implies that instructor colleges can foster a supportive environment for the growth of TVET trainers and staff members. With that said, a vital strategy is to introduce mentoring programs. This helps instructor colleges to interact with new TVET master trainers and build meaningful relations. Further, the study by Syahmaidi (2021) revealed that vocational colleges and institutions must set clear expectations. This implies that vocational teachers' performance should be measured, and proper feedback should be provided to enhance their success.

Moreover, environmental sustainability and the green economy are reshaping CPD priorities within instructor training institutions, as evidenced by initiatives documented by UNESCO-UNEVOC (2021). Countries like Germany and the Philippines have institutionalized climate change education within CPD, ensuring that TVET trainers are equipped to impart skills in renewable energy, sustainable construction, and energy efficiency. This trend is reinforced by Kenya's TVET reforms, which embed private sector partnerships to keep curricula aligned with green skills (UNESCO-UNEVOC, 2021). The growing emphasis on digital and green competences is mirrored in India's Skills Council for Green Jobs and South Africa's Greening TVET Colleges Initiative, both of which integrate environmental sustainability into CPD content (UNESCO-UNEVOC, 2021). Instructor training institutions are thus increasingly required to balance traditional technical skills with competences in digital literacy, smart technologies, and sustainable practices. Additionally, the use of micro-credentials and stackable digital badges, as highlighted by Aryee et al. (2024), is improving CPD

completion rates and enhancing modular learning flexibility, crucial for time-constrained TVET trainers. Collectively, these trends underscore that the status of instructor training institutions is evolving towards more integrated, flexible, and industry-responsive CPD models that are not only technologically advanced but also aligned with sustainability imperatives and the future of work.

Kenya and Rwanda offer practical models that Uganda can meaningfully adapt to enhance its own teacher development systems. In Kenya, the UNESCO-supported Industrial Training Attachment Policy integrates hands-on, industry-based exposure into vocational training, while the Master-Trainer Programme aligns CPD with the national AI strategy through hybrid models incorporating AI ethics, Microsoft AI-900 certification, and peer coaching (UNESCO, 2024). Kenya further embeds CPD within its Competency-Based Curriculum (CBC), requiring teachers to maintain reflective digital portfolios and engage in micro-credentialed, school-based learning circles, supported by LMS-driven modules on inclusive pedagogy tailored for refugee and host-community teachers (Mugambi & Chepkonga, 2024).

Similarly, Rwanda's National E-learning System for CPD provides zero-rated access to modular courses. District-level Teacher Learning Circles are guided by trained mentors who use low-cost tablets to capture classroom videos for peer critiques. This fosters continuous, practice-based learning (VVOB, 2022). Rwanda's TVET Trainer Certification Framework, developed in collaboration with KOICA, standardizes CPD for vocational educators. It does so through competency-based training and assessment. Additionally, the comprehensive Teacher Development and Management (TDM) Policy (2024–2030) institutionalizes CPD, teacher licensing, welfare incentives, and quality assurance. This is supported by a robust Teacher Management Information System (TMIS) (VVOB, 2022). These multi-faceted approaches, integrating digital platforms,

structured mentorship, competency-based certifications, and policy-backed incentives, present a rich blueprint Uganda could adopt to professionalize and sustain impactful CPD.

However, despite the breadth of models and strategies explored across existing studies on CPD for TVET trainers, significant contextual, methodological, and practical gaps remain that warrant the current study. Ismail et al. (2018) provide a foundational competency framework, yet their model lacks micro-credential pathways and provisions for lifelong learning, offering a rigid, top-down structure validated only through expert opinions without quantitative data or engagement with industry stakeholders, limiting its practical relevance. Similarly, Zhou et al. (2024) and Diao et al. (2024) present comprehensive, multi-level models of trainer development, but their frameworks are deeply rooted in socio-economic and policy contexts of Asia, Australia, and Europe, where infrastructure, funding, and governance far outpace Uganda's reality of digital fragility, rural-urban disparities, and underfunded institutions. Moreover, Diao et al. (2024) omit essential soft skills, ethics, and teacher wellbeing, critical in fragile contexts like Uganda, while their complex 147-criteria rubric is ill-suited for resource-constrained settings. Parallel studies by Soklaridis et al. (2024), Aryee et al. (2024), and Al-Omary et al. (2024) advance understanding of e-learning and micro-learning but focus exclusively on healthcare, neglecting the psychomotor, competency-based, and cascade-oriented demands of TVET, particularly for Master trainers (ToTs). These reviews also under-represent Sub-Saharan Africa, with minimal insights from Uganda or its TVET landscape.

Similarly, Al Yakin et al. (2025) showcased promising micro-credential and AI-proctoring interventions, but all trials occurred in Middle Eastern and ASEAN countries with robust infrastructure, industry proximity, and generous CPD funding, none of

which align with Uganda's constrained environment. The current study addressed these cumulative gaps by generating empirical, Uganda-specific data and a CPD model tailored for TVET Master Trainers (TMT) within TVET, emphasizing scalable, low-bandwidth, and industry-responsive strategies that accommodate Uganda's infrastructural limitations, socio-economic dynamics, and the imperative to cascade skills effectively across the informal and rural sectors.

2.2.3.1 The German Model-Dual

The dual apprenticeship system of the German system, which emphasises both enterprise-based and centre-based training, is widely recognised. It stems from the German corporate culture, which follows a traditional apprenticeship model. It includes four days of practical training given within businesses and one day of theoretical instruction given by public vocational training centres each week. An organisation hires apprentices and provides them with formal training for an average of 35 years under a recruiting contract. A qualified master oversees the trainee. The firm provides a predetermined payment to apprentices covered by the agreement, and upon completion of each type of training within the allotted time frame, graduates are awarded a nationally recognised diploma. The percentage of school dropouts in Germany is still over 70%, and most of them continue their education after gaining a diploma, which is crucial for granting apprentices the ability to enrol in more advanced programmes (Bunning, 2022).

2.2.3.2 Collaboration Models between TVE Institutions and Enterprises in China

According to Joo and Ying, 2009 (2013) Four models of TVE industry collaboration at the service delivery level have been identified from a variety of other models that have

been established in China as part of initiatives to strengthen TVE industry links. Among these models are:

i. Mutual cooperation between enterprise and school model (Quanquan, 2009) – China
ii. The Combined School-Factory Model
iii. Models of Continuous Professional Development (CPD)
iv. Technological Pedagogical Content Knowledge (TPACK) Model

2.2.3.2.1 Mutual cooperation between enterprise and school model (Quanquan, 2009) – China

This model is a collaborative approach where enterprises (industries) and TVET institutions work together to identify and address training needs. It is widely used in countries like China to ensure that TVET trainers are equipped with industry-relevant skills and knowledge. The model relies on a partnership between TVETs and businesses to analyse, identify, and address skill gaps. The process typically unfolds joint skill assessment enterprises that identify the skills and competencies required by the labour market. TVET institutions evaluate the current capabilities of their trainers.

A comparison revealed the gaps between what is taught and what is needed. Curriculum development based on the identified training needs, both parties co-design updated training programmes. This ensures trainers are equipped with emerging technologies and modern industrial practices. Industry-based training for trainers: TVET trainers undergo internships or industrial attachments within partner enterprises. This hands-on exposure helps them stay current with real-world applications. Feedback loops through continuous monitoring and evaluation from both sides refine training needs. Regular meetings and industry reviews keep the curriculum dynamic and responsive. The

benefits of industry involve the development of industrial production processes and productivity, while the benefits of vocational school involve having access to the industry's technology and equipment and getting financial support from the industry. The other benefits are cooperation, mutual benefits, shared responsibility, and relevant jobs for the graduates, and linking skill development with industry. The model relies on a partnership between TVETs and businesses to analyse, identify, and address skill gaps. The process typically unfolds joint skill assessment enterprises that identify the skills and competencies required by the labour market. TVET institutions evaluate the current capabilities of their trainers. A comparison reveals the gaps between what is taught and what is needed. Curriculum development based on the identified training needs, both parties co-design updated training programs. This ensures trainers are equipped with emerging technologies and modern industrial practices. Industry-based training for trainers:

TVET trainers undergo internships or industrial attachments within partner enterprises. This hands-on exposure helps them stay current with real-world applications. Feedback loops: Continuous monitoring and evaluation from both sides refine training needs. Regular meetings and industry reviews keep the curriculum dynamic and responsive. The benefits of industry involve the development of industrial production processes and productivity, while the benefits of vocational school involve having access to the industry's technology and equipment and getting financial support from the industry. The other benefits are cooperation, mutual benefits, shared responsibility, and relevant jobs for the graduates, and linking skill development with industry. The method is based on the collaboration that advantageously benefits all stakeholders. The company benefits from improved industrial production processes and productivity, as does the TVE school (provider). Gaining access to the resources and expertise of corporations as

well as getting direct financial support from them, are advantages. Improvements in technology and increased productivity are two instances of the mutual benefits that might arise from an alliance between the company and the university.

2.2.3.2.2 The Combined School-Factory Model

The Combined School-Factory Model is an educational and vocational structure that combines academic learning with practical industry training, either inside the same institution or in close collaboration with firms. The approach, developed in early twentieth-century industrial countries, notably in Germany and the Soviet Union, sought to bridge the gap between theoretical education and actual worker requirements (Bailey, 1995). It allows students to spend half of their time in classrooms learning core courses and the rest of their time in production environments gaining practical skills. This methodology not only increases employability, but it also promotes a better alignment of educational results with labour market demands (Ryan, 2001). Variations of this paradigm may be seen today in vocational education and training (VET) systems, apprenticeships, and dual education programs, notably in Germany, Switzerland, and China (Euler, 2013).

TVET institutions establish a joint school-factory enterprise to meet the needs of the local economy. Instructors who participate in industrial production get experience that helps them improve as instructors. This sort of collaboration also improves the teaching materials. After analysing TVE institution-enterprise collaboration models for China, it was determined that while the model was effective, it was implemented in China. As a result, it must be tried in African nations, especially Uganda, to support trainers with practicums so they can provide high-quality training and identify research gaps in Uganda (TVET ACT,2025).

This study, which was carried out in Indonesia, compared how well students graduating from vocational and non-vocational high schools responded to the use of the Andragogical-Oriented Teaching Method (AOTM) and the Practice-Oriented Teaching Method (POTM) (Rismiyanto & Fitri Budi, 2022). When comparing pre-test and post-test results, the findings indicated that AOTM and POTM affect raising students' performance in the classroom who graduated from secondary schools that were both vocational and non-vocational. Her AOTM and POTM, which were presented in "Speaking for" Educational Purposes (SIP) seminars that both graduates and non-graduates attended, do not, however, have any bearing on the way that they are taught. The introduction of AOTM and POTM, however, may have a bigger effect on vocational school graduates' academic performance than non-vocational school graduates, given undoubtedly different circumstances. The purpose of the study, which was carried out in Indonesia rather than Uganda, was to examine the efficacy of using practice-based and andragogical orientated teaching approaches with students.

Due to the numerous issues that universities, including the technological colleges in Bauchi State, Nigeria, are dealing with, instructors of all ages who work at these colleges must constantly update their knowledge and abilities (Mohammed Adamu et al., 2017). By addressing competency needs in vocational schools in Bauchi State, the study aimed to develop a competency model for TVET instructors. The results show that all 25 of 30 of her competences are deemed significant by VET teachers, and Cronbach's alpha is deemed adequate. Only her VET teachers' opinions on the abilities needed at their particular institutions are discussed in this study. This work offers a crucial preliminary investigation of the suggested VET teacher competency model, paving the way for more research in this field. This study presented a suggested competence model for TVET teachers working in technical colleges in Bauchi State. As a result, it was determined

that questionnaire scales are trustworthy and might be useful in measuring the things they are intended to assess. This study pointed out that this model's interpretation has limits.

Most recent with the ability to capture students' attention and increase their concentration on independent study anywhere, at any time, mobile technology, also known as educational technology or M-learning, is a novel approach to education. The suggested M-learning paradigm for TVET students in Malaysia was the main focus of the study (AZMI et al., 2017). The device, user, and social technology needs of the TVET students served as the foundation for the model's creation. The suggested approach will serve as a roadmap for creating M-Learning apps, which can enhance the calibre of instruction and learning while inspiring students' curiosity in the subject matter. The fact that M-learning offered TVET students a strong chance of landing a job and adjusting to the workforce was one of its benefits. By fostering student-centred learning and conserving time, m-learning can increase the efficacy of teaching and learning. The process of learning, which includes both social and individual learning, might undergo additional modifications as a result of m-learning.

Additionally, by integrating a mobile device into the learning process, information sharing and exchange activities may be maximised regardless of location or time. The primary objective of the research was to create an M-learning module that could be used and utilised in the creation of M-learning systems based on the demands and specifications of users. The t-test result verified that the M-learning TVET model can be implemented and utilised, and the analysis revealed that the average mean score of usability was high. You can utilise and adapt the TVET model. The results demonstrate that the primary contribution of this research was a model of M-learning in TVET that

was developed in response to the needs of TVET students who demand a foundational knowledge base for further education (AZMI et al., 2017).

2.2.3.2.3 Models of Continuous Professional Development (CPD)

Continuous Professional Development (CPD) is essential for enhancing the competence, professionalism, and instructional effectiveness for TVET master trainers. Over time, different models of CPD have emerged to reflect varying approaches to teacher learning. Among these are the transactional, transmission, transformative, and TPACK models, each of which reflects a unique understanding of how TVET master trainers should be supported in their professional growth and development.

2.2.3.2.3.1 Transmission Model of CPD

The transmission (Training, Award, Deficit and Cascade) model is similar to the transactional method, but it emphasises the top-down spread of expert information (Cascading). In this paradigm, TVET master trainers were largely considered as content receivers, with little room for conversation or reflection. Opfer and Pedder (2020) found that while transmission-oriented CPD can be useful for introducing new policies or technology, it may hinder teacher agency and professional autonomy. The technique is commonly utilised in centralised education systems where teacher training is standardised and monitored.

2.2.3.2.3.2 Transactional Model of CPD

The transactional (Standard based, mentoring/coaching, community of practice) model of CPD focusses on efficiency, compliance, and the delivery of specified information or skills. It frequently takes the form of brief workshops or seminars with an emphasis on rapid information transfer, which are generally organised by educational authorities or

external entities (Kennedy, 2020). While this methodology guarantees that instructors receive consistent information that is frequently linked with policy changes or curriculum revisions, it has been criticized for lacking depth and durability (Owen, 2021). Teachers may attend CPD workshops for certification or formal requirements rather than intrinsic professional development, resulting in little long-term influence on classroom practice.

2.2.3.2.3.3 Community of Practice (CoP) CPD Model for TVET Trainers

The Community of Practice (CoP) CPD Model is a collaborative approach to professional development in which Technical and Vocational Education and Training (TVET) instructors share their learning experiences with other professionals. This notion is predicated on the premise that learning is a social process that works best when people join a community with comparable interests, goals, and challenges (Wenger, 1998). CoPs in TVET enable trainers to share knowledge, reflect on teaching methods, and work together to address vocational education and training difficulties (UNESCO-UNEVOC, 2020). These communities can be formal or informal, with trainers, industry experts, policymakers, and academics participating in chats, workshops, peer observations, and action research (Lave & Wenger, 1991).

The CoP CPD Model supports continuous, context-driven learning that is directly relevant to trainers' professional needs. Unlike traditional, one-time CPD seminars, CoPs establish long-term learning networks in which trainers meet on a regular basis to discuss best practices and cooperate on developing innovative teaching approaches (OECD, 2021). These communities are especially valuable in TVET environments, as trainers must keep up with changing industry standards, evolving technologies, and competency-based teaching techniques (Cedefop, 2019). Trainers that engage in CoPs

gain peer support, mentorship, and real-world experience, which increases their ability to give industry-aligned training to students (Hord 2009).

CoPs can take several forms, such as in-person networks, online learning communities, or hybrid models. Professional forums, webinars, and social media groups have expanded CoPs' reach, allowing trainers from many institutions and countries to engage (World Bank, 2022). To be effective, CoPs need institutional support, active participation, and a culture of trust and information sharing (Lesser & Storck, 2001). Unequal participation, time constraints, and a lack of formal recognition can all limit the establishment of CoPs (Kennedy 2014). TVET institutions may address these challenges by developing well-organized CoP programmes with clear objectives, leadership positions, and participation incentives that assure long-term commitment and effectiveness (Timperley, 2011).

The Community of Practice CPD Model provides a dynamic, collaborative, and practice-focused approach to professional development. CoPs help TVET trainers share information, solve problems, and innovate in teaching and training by linking them with peers and industry professionals. When effectively guided, CoPs develop professional learning communities, increase instructional quality, and close the gap between vocational education and industry demands.

2.2.3.2.3.4 CPD Mentoring/Coaching model

The CPD Mentoring/Coaching Model is a professional development strategy that focusses personalized, one-on-one supervision and guidance to assist TVET (Technical and Vocational Education and Training) trainers in improving their skills and competencies. This model needs experienced professionals (mentors or coaches) to teach less experienced trainers through reflective practice, skill-building exercises, and

career development techniques (Kennedy, 2014). Unlike traditional CPD methods, which emphasize standardized training programs, the mentoring/coaching model promotes individualized learning, allowing trainers to enhance their pedagogical and technical abilities via collaborative discourse, observation, and constructive feedback (Cedefop, 2019). This notion is especially effective in TVET, as trainers must continually adapt to new industrial technologies, evolving teaching methodologies, and student-centred approaches (OECD, 2021).

The reciprocal learning process is what distinguishes this paradigm, in which both the mentor and the mentee benefit from exchanging information. Mentoring collaborations frequently include experienced TVET trainers or industry professionals who offer structured help with curriculum development, instructional approaches, and industry-specific skills (UNESCO-UNEVOC, 2020). Coaching, on the other hand, is usually more goal-oriented and performance-driven, focusing on specific skill development and problem-solving tactics (Joyce & Showers, 2002). Mentoring and coaching in CPD have been shown to improve teaching quality, increase trainer retention, and build professional confidence (Timperley, 2011). Furthermore, peer mentorship programs, in which trainers support one another's professional development, have gained popularity as a low-cost, long-term CPD strategy at TVET institutions (OECD, 2021).

The CPD Mentoring/Coaching Model is a very effective professional development strategy for TVET trainers that encourages individualized, experience-driven learning. When combined with set regulations, institutional support, and stated objectives, this technique not only increases trainer competencies but also the overall quality of TVET education by ensuring continuous professional growth and skill transfer.

2.2.3.2.3.5 Transformative Model of CPD

The transformational approach, on the other hand, is based on critical reflection, cooperation, and a thorough understanding of practice. It promotes teacher agency, encourages teachers to question their views, and links professional development with social and pedagogical change (Kennedy, 2020). Transformative CPD is frequently collaborative, incorporating inquiry-based learning, peer mentorship, and communities of practice. Darling-Hammond et al. (2020) found that transformational models are most effective when continuous professional development is job-embedded and linked to real-world classroom difficulties. This methodology fits well with constructivist learning theories and is increasingly being promoted in teacher education reform agendas.

Collaborative learning is another important aspect of the transformative CPD model. Trainers are encouraged to join peer learning groups or professional learning communities (PLCs), where they may share ideas, experiences, and solutions for addressing teaching challenges (Hord, 2009). These communities provide a venue for trainers to support one another's professional development and engage in discourse about educational methods, beliefs, and goals. Collaborative learning allows trainers to not only enhance their technical abilities but also widen their professional viewpoint, typically by learning from colleagues with various teaching styles, topic knowledge, or industry contacts. This peer-to-peer contact is critical to the transformational paradigm because it allows for the integration of multiple viewpoints and the formation of a shared vision for educational reform.

The transformational CPD approach also includes action research as an important part of professional development. This strategy encourages TVET trainers to perform their

own action research projects to address real-world teaching difficulties such as student engagement, curriculum creation, and assessment methodologies (Kemmis & McTaggart, 2000). Trainers who participate in action research become change agents, conducting systematic investigations into their own practices, applying solutions, and commenting on the results. This method enables trainers to apply theory to practice, get a better understanding of teaching and learning, and contribute to the evidence based for enhancing TVET education.

Action research promotes a problem-solving mind-set, where trainers are empowered to take ownership of their professional growth and contribute to the broader discourse on TVET reform (Cochran-Smith & Lytle, 2009). The transformational CPD models provide TVET trainers with a strong approach to professional development that focusses on deep, reflective, and collaborative learning. These strategies allow trainers to build new abilities while also reshaping their teaching philosophy and practices by focusing on personal growth, critical reflection, and action-oriented learning. The transformational method is especially important in dynamic industries like TVET, where trainers must continually adapt to industry developments, technology improvements, and changing learner demands. When executed correctly, transformational CPD may result in considerable increases in teaching quality, trainer motivation, and student.

2.2.3.2.4 Technological Pedagogical Content Knowledge (TPACK) Model

The TPACK model, established by Mishra and Koehler and lately emphasised in 21st-century CPD frameworks, is concerned with the integration of technology, pedagogy, and subject knowledge (Baran et al., 2021). TPACK is crucial in current CPD programs, particularly those focused on digital literacy or online teaching, to ensure that instructors

understand how to incorporate technology effectively into subject-specific pedagogy rather than merely learning about it in isolation. According to research, TPACK-based CPD encourages creative teaching techniques that improve student engagement and results while also supporting deeper technical proficiency among instructors (Koehler et al., 2022). The paradigm is especially applicable in the post-COVID-19 era, when digital instruction has become crucial to educational delivery.

TVET trainers have the twin obligation of delivering technical expertise while also developing industry-specific skills in trainees.

The TPACK paradigm helps trainers by emphasising the significance of integrating technology, content, and pedagogy. In the TVET setting, subject knowledge refers to the industry-specific skills and information needed for the vocational area, whereas pedagogy refers to the procedures and techniques utilised to successfully teach such abilities. In this scenario, technology is more than just a tool; it is an integral part of the teaching-learning process. TPACK helps trainers decide how to include various technological tools, such as digital simulators, online learning platforms, or industry-standard software, into their training methods. TVET trainers who master the TPACK framework may build courses that are both pedagogically sound and responsive to technological changes in their field (Mishra & Koehler, 2006; Voogt et al., 2015).

The use of TPACK in TVET training necessitates a careful balance of three key components: content, pedagogy, and technology. For example, in a welding course, a trainer must have strong content knowledge of welding techniques and safety practices, pedagogical knowledge to engage students and ensure understanding, and technological knowledge to incorporate digital tools such as virtual welding simulators or augmented reality for teaching complex techniques. A TPACK-informed strategy enables trainers

to select and apply relevant technologies that complement their teaching approaches and improve the learner's experience. The usefulness of such an approach is confirmed by research, such as that conducted by Angeli and Valanides (2009), who discovered that teachers who included TPACK ideas into their teaching were more successful in increasing student engagement and knowledge.

2.2.4 Status of instructor training institutions

The status of instructor training institutions significantly influences the quality and sustainability of Continuous Professional Development (CPD) programmes for TVET trainers. Across multiple African and global contexts, capacity constraints in instructor-training institutions directly limit the depth and breadth of CPD opportunities. In Kenya, for example, Kahiga et al. (2024) report that while 97.4% of TVET institutions in Nyeri County possess workshops, only 11.6% are adequately equipped, with critical facilities like libraries absent in 51.6% of schools and 85.6% lacking science laboratories. This infrastructural weakness limits the environment in which trainers themselves are developed, affecting their readiness to adopt industry-standard practices or integrate digital tools into pedagogy. In addition, leadership qualifications are inadequate, with 45.8% of Heads of Departments held only a diploma, and less than 1% had a master's degree, resulting in limited capacity to drive innovation in CPD delivery or mentoring frameworks. Korir and Erastus (2022) reinforce this concern, finding that ISO training ($r = 0.789$) and effective communication ($r = 0.767$) strongly correlate with curriculum delivery success, yet these institutional cultures are inconsistently nurtured across TVET settings. Institutional cultures that emphasize quality, accountability, and leadership are thus critical but lacking, leading to underperformance in both curriculum delivery and professional growth. Moreover, the scarcity of learning resources and modern infrastructure inhibits institutions' ability to offer competitive and industry-relevant

programmes, thereby stalling CPD integration aimed at equipping trainers with current competences (Kahiga et al., 2024).

Similarly, Hasanah et al. (2025) highlights the importance of institutional support, noting that collaborative cultures, adequate resources, and industry partnerships are essential to sustaining continuous professional learning for TVET teachers. Without these enabling conditions, the gap between institutional capacity and CPD effectiveness widens, particularly in contexts with limited funding and outdated infrastructure.

Further compounding these capacity challenges are systemic governance and policy limitations that hinder instructor training institutions from effectively supporting CPD. Makole et al. (2023) capture the post-merger instability in South Africa's Gauteng Province, where fragmented organizational cultures, racial tensions, and top-down bureaucratic management erode institutional cohesion. The lack of shared values like teamwork and accountability; principles traditionally embedded in Ubuntu; further undermines leadership and strategic planning within TVET institutions. This situation is mirrored in Rwanda, where Niyonasenze et al. (2024) document how inadequate ICT infrastructure, unreliable internet connectivity, and a lack of smart classrooms stifle the adoption of blended CPD models. Trainers in such under-resourced environments struggle to apply new skills effectively, even when CPD opportunities are available. The issue is not merely infrastructural but systemic: Mende et al. (2023) in a global review, found that fragmented governance leads to uncoordinated CPD efforts, with weak employer involvement resulting in misaligned curricula and trainer skills that fail to meet labor market needs.

In low-income countries, reliance on donor-funded CPD is common but unsustainable, creating a cyclical pattern where temporary competency gains diminish once external

funding lapses (Niyonasenze et al., 2024). Moreover, Chuprynko (2020) reports that over 60% of school governance decisions remain centralized, limiting institutional autonomy to innovate or contextualize CPD, while 46% of schools lack enterprise representation on their boards, weakening the potential for industry-informed training reforms. These governance and policy gaps collectively stall the institutionalization of CPD and diminish the potential impact of instructor-training institutions on enhancing trainer competencies.

Parallel to governance constraints, the variability in institutional types also shapes the capacity for CPD delivery and uptake. Wickramasinghe and Wickramasinghe (2024) reveal that TVET colleges are significantly disadvantaged compared to polytechnics and TVET universities in their capacity to implement Industry 4.0 competences. These disparities are attributed to differences in resources, infrastructure, and staff capacity development, with TVET colleges frequently lagging in digital skills training and exposure to modern technologies. The study also identifies economic conditions as a critical moderator; countries with higher GDP growth per employed person demonstrate greater success in CPD outcomes and Industry 4.0 integration, pointing to the broader macroeconomic factors that influence institutional capacity.

In Kenya, the Annual Returns Report (2023) confirms this inequity, showing that only 43.58% of TVET trainers hold bachelor’s degrees, and a concerning 10.67% have qualifications below the Craft Certificate level. The equipment gap persists, with 37% of engineering workshops using outdated machines, directly limiting technical upskilling (TVETA, 2024). Moreover, regional disparities exacerbate inequalities, as marginalized counties like Samburu and Lamu have fewer institutions, restricting access to CPD and reinforcing systemic underdevelopment in trainer competences. Gendered barriers persist too; female trainers are 25% less likely to attend external CPD due to

familial obligations, while only 12% of Kenyan TVET colleges have dedicated CPD coordinators, reflecting structural deficiencies in managing professional growth pathways (TVETA, 2024). Such institutional weaknesses highlight the pressing need for differentiated CPD strategies that are responsive to institutional typologies, resource endowments, and contextual challenges.

In Uganda, the instructor-training landscape mirrors many of these constraints but is further compounded by acute staffing shortages and limited infrastructure. The Ministry of Education and Sports (2016, 2017) identifies the National Instructors College Abilonino (NICA) as the sole public institution responsible for pre-service training of TVET instructors, graduating roughly 100 trainers annually across 11 craft specializations. This limited output is insufficient for the national demand, especially given that 60% of rural TVET institutions lack basic science equipment, restricting practical instruction and weakening both initial training and CPD efforts (Ministry of Education and Sports, 2017).

Whereas Uganda's National CPD Framework (2019) aims to institutionalize professional development, its implementation remains fragmented and heavily reliant on donor initiatives like JICA's SESEMAT, which do not guarantee sustainability. In-service pathways are particularly weak in fields beyond health education, with no structured national programmes for engineering, agriculture, or business instructors - most trainers depend on sporadic workshops or short courses that lack continuity or depth (Ministry of Education and Sports, 2016, 2017). Gender disparities further constrain the sector; female instructors remain underrepresented, and the absence of career progression pathways drives many trainers out of teaching into administrative roles, diluting the trainer pipeline. These systemic weaknesses in Uganda's instructor-training institutions necessitate a reimagined CPD strategy that is sustainable, gender-

responsive, and attuned to local industry demands, infrastructure realities, and governance frameworks to build a competent and future-ready TVET workforce.

However, while the reviewed studies offer valuable insights into TVET institutional capacity, leadership, infrastructure, and general CPD concerns, they collectively reveal several critical gaps that necessitate the current study. Kahiga et al. (2024), Mack (2024), and Makole et al. (2023), do not directly address ToTs as a distinct group within the CPD ecosystem, despite their leading role in cascading skills and shaping pedagogical standards across TVET institutions.

Most studies focus broadly on frontline trainers or institutional factors, yet fail to examine the unique competences, mentorship capabilities, and adult learning methodologies required of ToTs. Second, while infrastructural and resource constraints are widely acknowledged (Kahiga et al., 2024; Niyonasenze et al., 2024; TVETA, 2023), there is little exploration of innovative CPD delivery models, such as blended learning, mobile learning platforms, or digital mentorship, which could mitigate these challenges in resource-constrained environments like Uganda's. Moreover, several studies (Korir & Erastus, 2022; Makole et al., 2023; Wickramasinghe & Wickramasinghe, 2024) identify weak industry linkages and outdated curricula but do not propose or test CPD frameworks that systematically integrate industry partnerships, work-based learning, or competency-based training models to ensure market relevance.

As well, most studies are geographically constrained, focusing on Kenya, South Africa, Rwanda, Trinidad and Tobago, or the Indo-Pacific, thus limiting their applicability to Uganda's unique socio-economic context, particularly its informal economy dynamics, policy landscape, and digital divide. The current study overcame these gaps by empirically investigating the specific CPD needs of ToTs within Uganda's TVET

sector, developing a context-responsive, blended CPD framework that leverages digital tools, and proposing structured industry collaboration mechanisms to align trainer competences with labour market needs, all within the policy provisions of Uganda's National TVET Policy (2019) and Skilling Uganda Strategy.

2.3 Chapter summary

The literature review provides valuable insights into global and regional approaches to CPD for TVET trainers, frameworks for identifying training needs, and innovative models for professional development. Current CPD for TVET trainers across Africa remains fragmented, overly focused on subject content and ICT skills while neglecting pedagogy, mentoring, and industry linkages, compounded by systemic barriers such as cost, time constraints, and weak policy frameworks (Hlatjwako et al., 2025; Negash et al., 2024; Njenga, 2024b). Strategies for identifying TVET trainers' training needs remain fragmented and inconsistent across countries, with weak or absent competency frameworks, limited industry engagement, and underperforming performance appraisal systems that fail to inform continuous CPD (Ismail et al., 2018; Paterson et al., 2024b; Yaqub et al., 2020). Innovative CPD approaches for TVET trainers increasingly integrate formal, non-formal, and workplace-based learning with digital, industry-aligned, and sustainability-focused models, enhancing flexibility and relevance in rapidly evolving education and labour market contexts (Diao et al., 2024; Paryono & Mashod, 2025; Zhou et al., 2024). Instructor training institutions across Africa, including Uganda, face significant challenges in infrastructure, governance, and resource capacity, which undermine the effectiveness and sustainability of CPD for TVET trainers (Kahiga et al., 2024; Makole et al., 2023; Ministry of Education and Sports, 2017).

The reviewed studies consistently overlook the unique role, competency needs, and cascade responsibilities of Master trainers (ToTs), with a pronounced geographical gap where most research is concentrated in Asia, Europe and Southern Africa, while also failing to provide context-specific, industry-validated, and low-tech CPD models adaptable to Uganda's infrastructural and policy realities. The current study addressed these gaps by generating Uganda-specific empirical data, developing a blended and scalable CPD framework for ToTs, integrating micro-credentials, and embedding structured industry partnerships and mentorship systems aligned with Uganda's TVET Policy and Skilling Uganda Strategy.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the methodology adopted to investigate the research problem, providing a systematic account of how the study was designed, conducted, and analysed. It outlines the guiding philosophical paradigm, research design, the study area, and target population. The chapter further explains the sampling procedure and determination of sample size to ensure representativeness. It describes the data collection instruments and procedures, quality control of these instruments, data collection procedures, data analysis methods, and ethical considerations. The chapter concludes with a summary that ties together all methodological components that guided the study.

3.2 Research Philosophical Paradigm

This study was underpinned by pragmatism as the philosophical paradigm. According to Onwuegbuzie and Hitchcock (2022), the pragmatic paradigm emphasizes the use of multiple methods, open inquiry, and practical solutions to real-world problems, allowing researchers to focus on the research question rather than being confined to the limitations of any single methodological tradition. Pragmatism is particularly suitable for this study, which explores the multifaceted landscape of Continuing Professional Development (CPD) for TVET trainers, an area that demands both quantifiable insights into current practices and a deeper qualitative understanding of perceptions, needs, and contextual challenges. This paradigm enables the integration of quantitative approaches such as structured questionnaires with qualitative techniques like interviews and focus group discussions to generate a comprehensive and contextually grounded analysis

(Onwuegbuzie & Hitchcock, 2022). Pragmatism was therefore chosen to best address the “what” and “how” questions of this study, guiding the design of a mixed-methods approach that allows the collection of diverse data types, triangulation of findings, and derivation of practical recommendations to inform institutional and national CPD strategies.

3.3 Research Design

This study was guided by a convergent parallel mixed-methods research design within a descriptive framework. According to Creswell and Plano Clark (2018), a mixed-methods design integrates quantitative and qualitative data collection and analysis to provide a comprehensive understanding of complex phenomena, while a descriptive approach aims to accurately portray existing conditions and trends. This design is particularly appropriate for examining current CPD practices among TVET trainers, the strategies used to identify their training needs, and potential innovative approaches within the Ugandan context. Quantitative data were collected through structured questionnaires, while qualitative insights were gathered via key informant interviews and document reviews. Both data types were analysed separately and then integrated during interpretation to identify patterns, gaps, and trends, providing evidence-based understanding of the CPD landscape.

3.4 Area of Study

A study area refers to the geographical or institutional setting where the research is conducted and from which data are collected (Sileyew, 2019). The area of study for this research encompasses the entire country of Uganda, with data collection concentrated

in strategically selected institutions and organizations that play key roles in the Continuing Professional Development (CPD) of TVET trainers. Specifically, the study involved three major public instructor training colleges: Jinja Vocational Training Institute in Jinja City (Eastern Uganda), National Instructors' College-Abilonino in Kole District (Northern Uganda), and Nakawa Vocational Training College in Nakawa Division, Kampala Capital City Authority. These institutions were purposively selected because they serve as national hubs for the training and continuous professional development of TVET instructors. The Ministry of Education and Sports (MoES), located in Kampala, and its affiliated Education Development Partners, such as KOICA, Enabel, UNESCO, and VVOB were also included, given their central role in policy formulation, coordination, and funding of CPD programmes. Additionally, the study included key industry partners, Uganda Manufacturers Association (UMA), Federation of Uganda Employers (FUE), Uganda Small Scale Industries Association (USSIA), HOMA Farm, and Kakira Sugar Works, who have worked closely with MoES between 2020 and 2024 to provide practical training and industry-based CPD support. Their involvement offers valuable insights into the alignment of CPD initiatives with labour market demands and emerging industrial skills.

3.5 Target Population

A study population refers to the entire group of individuals or units that possess the characteristics relevant to a particular research inquiry from which a sample may be drawn (Creswell, 2014). The total target population for this study was 189 individuals, all strategically involved in the planning, delivery, support, or oversight of Continuing Professional Development (CPD) for Technical and Vocational Education and Training (TVET) trainers in Uganda. This included 91 lecturers and technicians from three selected instructor training institutions: Jinja Vocational Training Institute, National

Instructor's College-Abilonino, and Nakawa Vocational Training College. Additionally, 3 principals (one from each institution) and 15 institutional management staff; comprising deputy principals, academic registrars, and heads of department, were targeted for their administrative roles in overseeing CPD at the institutional level. From the Ministry of Education and Sports (MoES), 4 Commissioners heading key departments within the Directorate of Higher TVET were included due to their leadership in CPD policy, strategy, and implementation. A further 40 staff members from the four major departments within the Directorate: TVET Operations and Management (TVETOM), Health Education and Training, Teacher Education Training and Development, and TVET Trainers, Research and Innovation, were included to offer insights into the institutional and national frameworks guiding CPD. The study also involved 4 programme managers from Education Development Partner organizations (KOICA, Enabel, UNESCO, and VVOB), given their critical roles in supporting and implementing CPD initiatives across Uganda. The study also included 27 trainees, 9 from each institution, to capture learner perspectives. Lastly, 5 representatives from industry partners who collaborated with MoES in CPD of trainers between 2020 and 2024, specifically the Uganda Manufacturers Association (UMA), Federation of Uganda Employers (FUE), Uganda Small Scale Industries Association (USSIA), HOMA Farm, Uganda Generation Company Limited, Uganda Electricity Distribution Company Limited, and Kakira Sugar Works, were included to provide perspectives on industry-aligned professional development for TVET trainers.

3.6. Sample Size

For quantitative data, Taro Yamane's formula (1967) was used to compute the sample size, this formula is

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

Where: n = required sample size

N = total population size

e = margin of error (0.05 for 95% confidence level)

Given the total number of Trainers: 91

$$n = \frac{91}{1+91\ (0.05)^2}$$

$$n = \frac{91}{1.1725}$$

$n = 74$

So, the sample size needed is **74** Trainers.

For the qualitative component of the study, all three principals, three officials from the Ministry of Education and Sports (MoES), and four representatives from Education Development Partner organizations were interviewed. This purposive inclusion of the entire group was intended to ensure a comprehensive and diverse range of perspectives. By engaging all key stakeholders, the study captured rich insights into the current state of CPD for TVET trainers, as well as the institutional and policy-level dynamics shaping its implementation.

Table 0.1: Study Population, Sample Size, Sample Techniques and data collection tools

Category	Population	Sample size	Sampling Techniques	Data Collection Tool
MoES Officials	4	4	Purposive	Interview
Principals	3	3	Purposive	Interview
EDPs	4	4	Purposive	Interview
Industrial Partners	5	5	Purposive	Interview
Institutional Management Staff	15	15	Purposive	FGD
HTVET Staff	40	40	Purposive	FGD
TVET Trainer Trainees	27	27	Purposive	FGD
TVET Trainers	91	74	Stratified Random	Questionnaire Survey
Total	**189**	**172**		

Source: *MoES, TVET Department (2024)*

3.7 Sampling Techniques

The study utilized both probability and non-probability sampling techniques, namely stratified random sampling and purposive sampling, to select participants systematically and purposefully.

3.7.1 Purposive Sampling

Purposive sampling is a non-probability sampling technique where participants are selected based on specific characteristics or knowledge relevant to the research objectives (Palinkas et al., 2015). In this study, purposive sampling was used to select key informants including Ministry of Education and Sports (MoES) officials, principals, and management staff of instructor training institutions, representatives from Education Development Partner organizations and Industrial partners. These individuals were chosen deliberately due to their direct involvement and expertise in TVET policy implementation, institutional management, and program support, ensuring rich and

relevant data for the study. Purposive sampling was appropriate here because it allows for the deliberate inclusion of participants who can provide in-depth insights into the research problem, enhancing the quality and depth of qualitative data (Palinkas et al., 2015).

3.7.2 Stratified Random Sampling

Stratified random sampling is a probability sampling technique in which the population is divided into distinct subgroups or strata based on shared characteristics, and then random samples are drawn from each stratum to ensure representation across key segments (Etikan et al., 2016). In this study, trainers were first categorized into three strata according to their respective institutions: Jinja Vocational Training Institute, National Instructor's College-Abilonino, and Nakawa Training Vocational College. Each institutional stratum was further divided into two subgroups: lecturers and technicians. From each of these subgroups, a random sample was selected to guarantee that both roles were proportionally represented within each institution. Stratified random sampling was chosen to enhance the representativeness of the sample, reduce sampling bias, and ensure that the diversity of trainers across different institutions and professional roles was accurately reflected in the study findings (Etikan et al., 2016).

3.8 Data Collection Instruments

The study utilized a combination of data collection instruments, including questionnaires, interview guides, and document review, to gather comprehensive and triangulated information.

3.8.1 Questionnaire

A questionnaire is a structured data collection instrument consisting of a series of

questions designed to gather specific information from respondents (Creswell, 2014). In this study, questionnaires were used to collect data from TVET trainers and were self-administered to allow respondents to complete them at their own convenience. The questionnaire was organized into several sections: Section A collected demographic data; Section B focused on Current CPD Practices; Section C addressed Strategies for Identifying Training Needs; Section D explored Adoptable Innovative CPD Strategies; Section E examined the Status of Instructor Training Institutions; and Section F assessed TVET Trainer Competences. The statements in Sections B to F were closed ended and measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This method was chosen for its efficiency in collecting quantifiable data from a relatively large sample, ease of standardization, and ability to ensure respondent anonymity, which can enhance the honesty and accuracy of responses (Creswell, 2014).

3.8.2 Interview Schedule

An interview schedule is a structured tool that provides key questions and topics to ensure consistent, effective, and comprehensive data collection during interviews (Creswell, 2014). In this study, interview schedule was used to collect qualitative data from principals, Ministry of Education and Sports (MoES) officials, and Education Development Partners through key informant interviews. The schedule included open-ended questions organized into sections aligned with the study variables, allowing respondents to elaborate on their experiences and insights related to CPD practices, training needs, innovative strategies, institutional status, and trainer competences. This method was chosen because it facilitates rich, detailed data collection and enables the researcher to probe for clarity and deeper understanding, enhancing the quality of information gathered (Creswell, 2014).

3.8.3 Focus Group Discussion Guide

A Focus Group Discussion (FGD) guide is a structured set of open-ended questions used by researchers to facilitate group dialogue around specific research topics, allowing for in-depth exploration of participants shared experiences and perspectives (Creswell, 2014). In this study, six FGDs were conducted, each comprising approximately 9–13 participants drawn from institutional management staff; TVET trainees focusing on student leaders; and selected staff of the Directorate of Higher Technical and Vocational Education and Training (HTVET) at the Ministry of Education and Sports. These discussions focused on gaining insights into institutional policies, challenges, and perceptions regarding the planning and implementation of CPD for TVET trainers. This method was chosen because it allows for the emergence of rich, collective narratives and provides opportunities for participants to build upon each other's ideas, offering a deeper understanding of group dynamics and consensus views (Creswell, 2014).

3.8.4 Document Review Guide

Document review is a systematic process of examining and analysing existing documents to gather relevant information and validate research data (Bowen, 2009). In this study, a document review guide was developed to examine institutional records related to CPD practices, training needs assessments, innovative CPD strategies, the status of instructor training institutions, and trainer competences. The guide focused on verifying and complementing data collected through questionnaires and interviews by reviewing performance appraisals, training plans, policy documents, infrastructure reports, and partnership agreements. This method was selected because it provides objective, contextual evidence that supports data triangulation and enhances the credibility and depth of the study findings (Bowen, 2009).

3.9 Validity and Reliability of the Instruments

Quality control of the data was ensured through the validity and reliability of the data collection instruments.

3.9.1 Validity of the Instruments

Validity refers to the extent to which an instrument accurately measures what it is intended to measure (Creswell, 2014). In this study, the validity of the instruments was ensured through a combination of content and construct validation strategies. For the questionnaire, content validity was established through expert review by academic supervisors at Eldoret University, the Research Ethics Committee (REC) at Gulu University, and a TVET specialist at the Ministry of Education and Sports (MoES). These experts evaluated the relevance, clarity, and coverage of the items to ensure alignment with the study objectives. Construct validity was tested through a pilot study conducted at Kampala Institute of Technical Teacher Education and Kyambogo University's Department of Instructor and Technical Teacher Education, involving 15 participants. The collected data were coded and analysed using SPSS version 27, where Exploratory Factor Analysis (EFA) was conducted. The rotated component matrix revealed that all items had average factor loadings above 0.5 on a single factor, confirming that each item effectively represented its intended construct.

Table 0.1: Rotated Component Matrix Findings

Category	No. of Items	Average Factor Loading
Current CPD Practices	9	.750
Strategies for Identifying Training Needs	9	.727
Adoptable Innovative Approaches to CPD	9	.779
TVET Trainer Competences	9	.815
Status of Instructor Training Institutions	9	.775

Source: *SPSS, Extraction Method: Principal Axis Factoring and Pilot Data, 2025.*

The trustworthiness of the qualitative instruments, including the interview, focus group discussion, and document review guides, was established through expert review and content validation. Supervisors from Eldoret University, the Research Ethics Committee (REC) at Gulu University, and a TVET expert at the Ministry of Education and Sports reviewed the tools to ensure they adequately captured the depth and scope of the study variables, thereby enhancing credibility.

3.9.2 Reliability of the Instruments

Reliability refers to the consistency and dependability of an instrument in producing the same results under similar conditions (Creswell & Plano Clark, 2018). To ensure the reliability of the questionnaire, a pilot test was conducted with 15 participants from Kampala Institute of Technical Teacher Education (KALIOTTE) and Kyambogo University's Department of Instructor and Technical Teacher Education. The collected data were coded and analysed using SPSS version 27, where Cronbach's Alpha was computed for each category of items. All categories recorded Cronbach's Alpha values above 0.70, indicating strong internal consistency and confirming that the instrument reliably measured the intended variables.

Table 0.2: Cronbach's Alpha Coefficient Findings

Category	No. of Items	Cronbach's Alpha
Current CPD Practices	9	.865
Strategies for Identifying Training Needs	9	.833
Adoptable Innovative Approaches to CPD	9	.873
TVET Trainer Competences	9	.892
Status of Instructor Training Institutions	9	.871

Source: *SPSS, Cronbach's Alpha test and Pilot data, 2025*

To further support trustworthiness, the interview and focus group discussion guides employed a structured format to ensure consistency in questioning across participants (Cohen et al., 2018). Document analysis was conducted systematically using predefined selection and evaluation criteria, minimizing subjectivity and enhancing confirmability. Collectively, these measures addressed credibility, dependability, transferability, and confirmability, aligning with established qualitative research standards.

3.10 Data Collection Procedures

The researcher adhered to the University of Eldoret's postgraduate research approval process, beginning at the Department of Technology Education, the School of Education and proceeding to the Postgraduate Research Committee. Upon approval, an introductory letter from the University of Eldoret was obtained and submitted to the Gulu University Research Ethics Committee (GUREC), which served as the ethical oversight body in Uganda. GUREC reviewed the research proposal and data collection instruments for ethical soundness, and upon satisfactory evaluation, recommended the study for clearance by the Uganda National Council for Science and Technology (UNCST). The UNCST issued a formal research permit, authorizing the researcher to proceed with data collection. With this permit, the researcher then sought and obtained official permission from the Permanent Secretary of the Ministry of Education and

Sports (MoES), whose letter granted access to institutions and respondents across the different study sites. This process ensured compliance with both Kenyan and Ugandan research regulations and strengthened the ethical foundation of the study.

Before the full-scale data collection commenced, the researcher conducted a pilot study involving 15 participants drawn from Kampala Institute of Technical Teacher Education and Kyambogo University's Department of Instructor and Technical Teacher Education. This was aimed at testing the validity and reliability of the data collection instruments. Subsequently, four research assistants were recruited and trained on ethical data collection practices, human subject protection, and effective administration of tools. Participant recruitment followed, guided by the approved sampling strategies to ensure representation across institutions, roles, and regions. Data collection involved sharing questionnaire link to selected TVET trainers using Kobo Toolbox, conducting key informant interviews with principals, MoES officials, industrial partners and education development partners, and holding a focused group discussion with institutional management and MoES staff. Additionally, institutional records and relevant policy documents were reviewed to triangulate and enrich the findings. Throughout the process, informed consent was obtained from all participants, and confidentiality was maintained to uphold ethical standards.

3.11 Data Processing and Analysis

Collected data was processed through organizing and coding and analysed using both quantitative and qualitative methods to draw meaningful conclusions aligned with the research objectives.

3.11.1 Data processing

After data collection, quantitative data from the survey questionnaires were carefully managed and processed to ensure both accuracy and reliability in addressing the study's objectives. Research assistants entered the completed questionnaires directly into Kobo Collect, a digital data collection platform that allowed for structured input using a pre-coded template. This minimized manual entry errors and ensured uniformity in how Likert-scale responses were captured. Once all entries were completed, the data were exported from Kobo Collect into Microsoft Excel for cleaning. Here, records were reviewed for completeness, with any inconsistencies or outliers flagged and addressed by cross-checking with the original paper forms. The cleaned dataset was then securely transferred into SPSS version 27 for further statistical analysis, including both descriptive and inferential procedures.

For the qualitative data collected through interviews and focus group discussions (FGDs), all audio recordings were transcribed verbatim to preserve the original content and contextual meaning of participants' responses. Notes from document reviews were also compiled, organized, and categorized in line with the study's thematic focus. A thematic coding framework was then developed and applied to the transcriptions using NVivo version 15, enabling systematic identification of recurring patterns, key categories, and sub-themes directly aligned with the research objectives. This systematic approach facilitated the extraction of insights into CPD practices, institutional dynamics, and strategic approaches to capacity development. Throughout the analysis, an audit trail was maintained to document analytic decisions, coding adjustments, and reflections, thereby ensuring transparency, credibility, and methodological rigor. All digital files were stored in password-protected folders to safeguard respondent confidentiality.

3.11.2 Quantitative Data Analysis

Quantitative data collected through survey questionnaires were analysed using statistical methods to identify patterns, relationships, and trends related to study variables. The cleaned and coded data were imported to and analysed with SPSS version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize trainer responses and provide an overall profile of the study variables. Inferential statistical techniques such as Pearson correlation and regression analysis were applied to examine the strength and direction of relationships between independent variables and the dependent variable. Additionally, to assess the mediating effect of the status of instructor training institutions on the relationship between CPD strategies and trainer competences, the PROCESS macro for SPSS was employed. Results were presented in tables and figures to enhance clarity, comparison, and interpretability of the findings (Ott & Longnecker, 2010)

3.11.3 Qualitative Data Analysis

Qualitative data from interviews, focused group discussions (FGDs), and document reviews were analysed using thematic analysis to uncover recurring patterns, key themes, and insights related to CPD strategies and TVET trainer competences. Transcripts were reviewed thoroughly, and data were coded using a hybrid approach that combined both inductive coding, emerging directly from the data, and deductive coding based on the study's conceptual framework and research objectives. Initial codes were systematically developed and refined into broader thematic categories that captured the depth and complexity of participant responses. NVivo version 15 was used to support the organization, retrieval, and analysis of coded data, increasing the transparency, consistency, and rigor of the process. The analysis was iterative, allowing

for the continual refinement of themes and sub-themes to ensure they remained grounded in the data. Findings are presented narratively, reinforced with illustrative quotations and examples from respondents to convey context and meaning, complementing the quantitative results and enriches the overall interpretation of the study (Flick, 2013).

3.11.4 Data Triangulation

To ensure the robustness and credibility of the study findings, data triangulation was employed by integrating quantitative and qualitative results. Quantitative data from surveys provided measurable trends, frequencies, and relationships, while qualitative data from interviews, FGDs, and document reviews offered contextual depth and explanatory insights. Triangulation allowed for the corroboration of findings across methods, highlighting areas of convergence and divergence to generate a more comprehensive understanding of CPD strategies and their impact on TVET trainer competences (Creswell & Plano Clark, 2018). This mixed-methods integration not only enhanced the validity and trustworthiness of the conclusions but also enabled the study to produce practical recommendations that are grounded in both empirical evidence and participant experiences (Flick, 2013). By systematically comparing and synthesizing insights from multiple sources, the study ensured that interpretations reflect the complexity of institutional practices, trainer needs, and policy influences within the Ugandan TVET context.

3.12 Ethical Considerations

This study adhered to research ethics, emphasizing the principles of informed consent, confidentiality, beneficence, research integrity, and accurate reporting.

Informed Consent: All participants were informed of the study's purpose, procedures, potential risks, and benefits before any data collection. Voluntary participation was emphasized, with both oral and written consent obtained. Participants were assured they could withdraw at any point without consequence.

Confidentiality and Anonymity: To safeguard participant privacy, coded identifiers were used in data files and reports. All data were stored in encrypted, password-protected digital folders, and no personal identifiers were disclosed. Only the research team had access to raw data to ensure confidentiality was fully maintained.

Beneficence and non-maleficence: The study strictly adhered to the principle of "do no harm" by avoiding any form of physical, psychological, or reputational harm to participants. Interviews and discussions were conducted in safe, respectful environments, and questions were worded sensitively to avoid discomfort. The findings aim to inform evidence-based improvements in CPD policy and practice, maximizing benefits to trainers and institutions.

Research integrity: The research was conducted with honesty and transparency, avoiding fabrication, falsification, and plagiarism. Data were accurately recorded and reported, with all literature and data sources appropriately cited. Original work was maintained throughout, and the research tools and processes were openly shared with reviewers and supervisors.

Ethical clearance: The study obtained ethical clearance from the University of Eldoret, followed by approval from Gulu University Research Ethics Committee (GUREC) see Appendix XII and final clearance from the Uganda National Council for Science and Technology (UNCST) see Appendix XII. Additionally, permission was sought and

granted from the Ministry of Education and Sports and the heads of participating institutions. This ensured adherence to national and institutional ethical guidelines.

Accurate reporting: The research findings were reported transparently, using clear methodology, proper referencing, and acknowledgment of data limitations and potential biases. All results were disclosed to preserve the credibility of the study (Kessio & Chang'ach, 2020).

3.12 Summary of the Chapter

Chapter Three provides a detailed account of the research methodology used to investigate the state of Continuing Professional Development (CPD) for TVET trainers in Uganda. Guided by the pragmatic paradigm, the study employed a descriptive research design and a mixed-methods approach, combining quantitative and qualitative data to comprehensively explore current practices, needs, and innovative strategies for CPD. The research was conducted across multiple study sites including three national instructor training institutions, the Ministry of Education and Sports (MoES), selected education development partners, and industry stakeholders, all of whom were identified as key actors in the CPD ecosystem. A total target population of 172 was identified. Data collection instruments included structured questionnaires, interview guides, focused group discussion (FGD) guides, and a document review checklist. The tools were tested for validity and reliability through expert review, pilot testing, and statistical analyses (EFA and Cronbach's Alpha). Data collection procedures were carried out with ethical approval from relevant institutions, ensuring informed consent, confidentiality, and integrity throughout the process. Quantitative data were analysed using SPSS v27, while qualitative data were coded and thematically analysed using NVivo v15. Together, these methods provided triangulated insights into CPD implementation,

trainer competences, institutional support, and policy implications, laying a strong foundation for evidence-based recommendations in the subsequent chapters.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study on enhancing Continuous Professional Development (CPD) for TVET Master Trainers in Uganda. It begins with an overview of the response rate and background characteristics of the respondents, followed by a detailed analysis of the data organized according to the study objectives. Descriptive statistics summarize key trends, providing a foundation for understanding emerging patterns, while qualitative findings and discussions connect the results to existing literature and the broader CPD context in Uganda's TVET sector. Inferential analyses test the research hypotheses and provide deeper insights into relationships between key variables, with findings presented in tables, charts, and narrative summaries linked to the study questions and objectives.

4.2 Response Rate and Demographic Characteristics

This presents the response rate and demographic characteristics as below:

4.2.1 Response Rate

Table 0.1: Response Rate

Instrument	Target	Actual	Response Rate
Questionnaire	74	74	100%
Interview schedule	16	10	62.5%
FDG Guide	82	82	100%
Total	**172**	**166**	**87.5%**

Source: Primary Data (2025)

Table 4.1 presents the response rates achieved in the study. An online questionnaire was distributed to 74 lecturers, all of whom responded, yielding a 100% response rate for the survey component. Additionally, face-to-face interviews were conducted with 10 out of 16 targeted key informants, representing a 62.5% response rate. While this rate is modest, the study reached a point of data saturation; where no new information or perspectives emerged; indicating that the collected responses were sufficient to address the research objectives. Maintaining the principle of saturation, as outlined by Creswell and Creswell (2018), ensured that the reduced participation did not compromise the analytical depth or validity of the qualitative findings. Nonetheless, the relatively lower rate occurred because some targeted participants were not readily available for interviews, while others declined to take part in the study due to personal or work-related reasons.

Furthermore, the study engaged 82 participants, including trainees, institutional management leaders, and Ministry of Education officials, in focus group discussions, achieving a 100% participation rate in that segment. This brought the overall response rate to 87.5%, demonstrating a high level of engagement across study categories. Such comprehensive participation strengthens the credibility and representativeness of the data and supports the robustness of the study's conclusions. As Creswell and Creswell (2018) suggest, a response rate above 50% is generally considered satisfactory for empirical research, positioning this study's outcome as both methodologically sound and empirically defensible.

4.2.2 Demographic Characteristics of the Respondents

This section presents the demographic characteristics of the respondents, namely, their gender, age, current qualifications, and years of experience in TVET teaching, as summarized in the Table 4.2.

Table 0.2: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage
Q1. Gender	Male	54	73%
	Female	20	27%
Q2. Age	18 - 30	4	5.4%
	31 – 40	26	35.1%
	41 – 50	22	29.7%
	51 – 60	22	29.7%
Q3. Current Qualification	Diploma	6	8.1%
	Degree	51	68.9%
	Masters	17	23.0%
Q4. Years of Experience in TVET Teaching	1 – 5	16	21.6%
	6 – 10	12	16.2%
	11 – 15	20	27.0%
	16 and above	26	35.1%

Source: *Primary Data (2025)*

Table 4.2 presents the demographic characteristics of respondents who participated in the study. In terms of gender, the study comprised 54 male respondents (73%) and 20 female respondents (27%). Although the sample was predominantly male, this composition reflects the broader gender imbalance that characterizes technical and vocational education and training (TVET) institutions in Uganda and similar contexts (UNESCO-UNEVOC, 2020). The inclusion of both genders, however, ensures that diverse perspectives are represented, even if the male dominance might influence the findings toward traditionally masculine views of technical instruction, mentorship, and leadership. This gender pattern underscores the importance of integrating gender-sensitive approaches in continuous professional development (CPD), as female trainers

may face unique barriers to accessing training opportunities or leadership roles within TVET systems. Thus, while the gender representation affirms realism and representativeness, it also points to a systemic issue that warrants policy attention in fostering inclusivity in trainer development programs.

Regarding age distribution, the largest proportion of respondents fell within the 31–40 age range (35.1%), followed by those aged 41–50 years and 51–60 years (29.7% each), with only 5.4% aged 18–30 years. This pattern suggests that most respondents are mid-career or late-career professionals, implying that the data primarily reflect the experiences of master trainers with significant institutional tenure and exposure to historical pedagogical trends. The underrepresentation of younger trainers may limit insights into emerging instructional needs shaped by new technologies and evolving labour market demands. Nonetheless, the wide age distribution remains valuable for understanding how CPD initiatives are perceived across career stages, as experience often correlates with professional confidence, openness to innovation, and perceived relevance of continuous training (Cohen et al., 2018). Therefore, the age diversity enhances analytical balance, but the skew toward older respondents indicates a potential conservatism in professional development attitudes within TVET institutions.

With respect to academic qualifications, 68.9% of respondents held a bachelor's degree, 23.0% a master's degree, and 8.1% a diploma. This academic distribution aligns with Uganda's TVET policy framework, which stipulates that all master trainers should possess at least a bachelor's degree, with ongoing efforts by the government to upgrade trainer qualifications to the master's level (MoES, 2020). The dominance of degree holders reflects compliance with these national standards and the gradual professionalization of the TVET teaching workforce. However, the relatively small proportion of trainers with master's qualifications suggests that the uptake of further

studies as a form of continuous professional development (CPD) remains limited. This may indicate that most trainers rely on institutional or ministry-sponsored upgrading rather than self-initiated academic advancement, as many of those who have pursued postgraduate studies were recommended for sponsorship by the Ministry of Education and Sports. While the qualification profile underscores the professional competence of the respondents, it also highlights the need for more proactive support mechanisms and incentives to encourage self-driven academic progression as part of sustainable CPD within Uganda's TVET system.

In terms of teaching experience, 35.1% of respondents had 16 years or more of service, followed by 27.0% with 11–15 years, 21.6% with 1–5 years, and 16.2% with 6–10 years of experience. This concentration of highly experienced trainers adds credibility to the findings, as such individuals likely possess deep contextual insight into institutional development and the evolution of CPD practices in Uganda's TVET sector. However, the dominance of long-serving professionals may also mean that the data reflect more traditional perspectives, potentially underemphasizing the adaptive strategies that newer educators bring to evolving pedagogical challenges. Research by Philogene et al. (2024) highlights that diversity in professional tenure strengthens data reliability, as it captures generational shifts in professional identity and instructional practice. The variation in experience observed here thus enriches the study by combining historical awareness with emerging perspectives, reinforcing the representativeness of the sample while revealing the need for tailored CPD programs across experience levels.

Overall, the demographic characteristics of the respondents demonstrate that the study sample was both diverse and representative of the target population, aligning with recommendations by Creswell and Creswell (2014) that a representative sample enhances the credibility and generalizability of research findings. The inclusion of

participants across gender, age, qualification, teaching experience, and institutional categories provides a robust empirical foundation for the study, consistent with Cohen et al. (2018) assertion that demographic diversity enriches data interpretation and strengthens internal validity. This diversity ensures that the conclusions drawn reflect the complex realities of continuous professional development among TVET master trainers. The representativeness of this sample therefore enhances the study's relevance for informing institutional policy, human resource development, and capacity-building interventions within Uganda's technical and vocational education framework, supporting similar findings by Haßler et al. (2020) that diverse professional perspectives are critical for effective TVET reform and workforce development.

4.4.1 The current CPD practices available for TVET trainers in instructor training institutions in Uganda

Table 0.3: Descriptive Statistics on current CPD practices available for TVET trainers

		SD (%)	*D (%)*	*NS (%)*	*A (%)*	*SA (%)*	*Mean*	*σ*
1	My institution regularly organizes CPD programmes for trainers.	2 (2.7)	12 (16.2)	7 (9.5)	33 (44.6)	20 (27.0)	3.77	1.105
2	CPD programmes at my institution are relevant to my technical field.	4 (5.4)	2 (2.7)	4 (5.4)	38 (51.4)	26 (35.1)	4.08	1.001
3	CPD activities are accessible to all trainers regardless of their location.	10 (13.5)	17 (23.0)	0 (0)	40 (54.1)	7 (9.5)	3.23	1.288
4	I receive timely information about upcoming CPD opportunities.	6 (8.1)	12 (16.2)	9 (12.2)	37 (50.0)	10 (13.5)	3.45	1.160
5	CPD programmes include both theoretical and practical components.	2 (2.7)	15 (20.3)	2 (2.7)	40 (54.1)	15 (20.3)	3.69	1.097
6	CPD sessions are facilitated by knowledgeable and experienced instructors.	2 (2.7)	4 (5.4)	6 (8.1)	38 (51.4)	24 (32.4)	4.05	.935
7	The content of CPD programmes is regularly updated to reflect industry trends.	4 (5.4)	6 (8.1)	15 (20.3)	29 (39.2)	20 (27.0)	3.74	1.111
8	My institution encourages trainers to share knowledge gained from CPD with colleagues.	2 (2.7)	6 (8.1)	13 (17.6)	34 (45.9)	19 (25.7)	3.84	.993
9	Participation in CPD programmes is recognized and rewarded by my institution.	4 (5.4)	23 (31.1)	10 (13.5)	28 (37.8)	9 (12.2)	3.20	1.170

Source: *Primary Data (2025)*

4.3.1.1 Organization of CPD programmes

The findings show that a significant number of respondents affirmed that their institutions regularly organize CPD programmes for trainers. Specifically, 44.6% agreed

and 27.0% strongly agreed, while 16.2% disagreed, 2.7% strongly disagreed, and 9.5% were undecided. The mean score of 3.77 indicate a general leaning towards agreement among participants. This suggests that CPD programmes are being organized with a fair degree of regularity across institutions. The standard deviation was 1.105, which points to considerable variability in responses, suggesting that while some trainers experience consistent access to CPD, others encounter less frequent opportunities. Practically, this inconsistency can lead to unequal professional growth opportunities among trainers, potentially affecting overall instructional quality. A likely reason for this disparity is uneven access to funding, with some programmes like agriculture benefiting from donor support while others remain underfunded.

The qualitative findings revealed that CPD implementation across TVET institutions in Uganda remains inconsistent and fragmented. While some efforts exist, they are largely uncoordinated and often rely on individual initiative or external donor support rather than structured institutional programmes. This irregularity limits widespread access and creates disparities in trainer development across institutions. Some of the key informants had this to say as quoted:

> *"Currently, CPD is mostly individual based, though we started departmental sessions about a year ago. Previously, lecturers sought their own opportunities, attending seminars either by my recommendation or on request. BTC once offered instructor training through the ATL program to strengthen TVET teaching. But generally, CPD remains self-driven, and any sponsored training is a bonus. We also have a current project with VVOB on practical entrepreneurship and agriculture training."* **KI8 (2025)**

> *"The current CPD implementation lacks legal structure. What is happening is primarily driven by individual instructors' initiative since we do not yet have an established policy. Often, participation is motivated by personal desire, especially among those seeking promotions."* **KI3 (2025)**

Another notable insight from the qualitative data is that CPD programmes tend to be sector-specific, with agriculture receiving more support due to donor funding. This

selective focus results in limited benefits for trainers in other technical fields, who may not receive tailored development opportunities. Support is often channelled through projects that emphasize industries, leaving other areas underfunded. As some informants explained:

> *"VVOB has supported CPD at National Instructors' College Abilonino (NICA) since 2019 through projects like Teach Agriculture Practically (TAP) and Learn Entrepreneurship and Agriculture Practically (LEAP). We have helped set up irrigation systems, mushroom facilities, and poultry projects. We have also organized trainings with agricultural experts on fish and goat farming. But our support is mainly focused on agriculture instructors and students."* **KI4, (2025)**

The qualitative findings revealed that institutions and government departments are increasingly investing in upgrading and upskilling TVET trainers, even though a formal national CPD framework is still not yet operationalized. The ministry allocated a specific budget for instructor training and run regular CPD sessions at institutional level whenever resources allowed. There was also deliberate collaboration between departments to tailor CPD programmes for TVET trainers and track their impact. Some participants noted:

> *"Trainers are currently being upgraded and upskilled in various ways. For example, we received scholarships from the Islamic Development Bank (IDB), which sponsored over 30 TVET trainers for further studies at master's and PhD levels. As a ministry, and specifically within the TVET department, we also have a dedicated budget for training instructors in areas where gaps have been identified."* **KI1, (2025)**

> *"As a department, we conduct CPD programmes at NICA quarterly. Every three months, once the funds are available, we organize CPD sessions for the trainers of trainer."* **FGD2, (2025)**

> *"Our department collaborates closely with the TVET Trainers, Research, and Innovation (TTRI) department to design and implement CPD programmes specifically tailored for TVET trainers of trainer. We have a dedicated desk officer who coordinates all CPD activities, and as a department, we actively facilitate training sessions and monitor the outcomes to ensure effectiveness and relevance."* **FGD3, (2025)**

Document review revealed several CPD trainings conducted at NICA in recent years. For instance, a CPD session was held from 6th to 12th November 2023 to orient TVET master trainers in preparation, assessment, and delivery competencies under the CBET approach and attendance was 90%. Another workshop for trainers of trainees (ToT) on CBET was conducted from 6th to 7th August 2024 was focusing on technical competences of TVET Master trainers in their trade specific attendance was 100% for some trades whereas other were 85%. More recently, in January 2025, a CPD programme was organized for NICA lecturers and TVET instructors focusing on ICT and soft skills to enhance CBET delivery and attendance was 95%.

Both the quantitative and qualitative findings agreed that CPD programmes are being implemented in TVET institutions, though not consistently across all fields and institutions. While survey data shows a general leaning towards agreement that CPD is regularly organized, interviews and document review reveal that implementation is uneven, often donor-driven, and lacking a national policy framework. This alignment suggested that although CPD opportunities exist, the absence of a coordinated and equitable approach may result in disparities in trainer development and instructional quality.

The findings revealed that although CPD programmes for TVET trainers in Uganda are being organized with some consistency, their implementation remains fragmented, uneven, and often dependent on individual effort or donor-driven support. This concurs with Philogene et al. (2024), who found that in Rwanda, only 31.1% of TVET teachers had received formal training by 2021/22, leaving the majority without structured pedagogical support, particularly in technical disciplines.

Similarly, Negash et al. (2024) reported low CPD participation in Ethiopia, with less than 40% of teachers engaging in any CPD, and even fewer participating in subject-method workshops or mentorship. These regional parallels suggested that the fragmentation observed in Uganda is not unique but reflected a broader systemic weakness in CPD delivery across the region. However, Uganda's scenario appears slightly worse given the limited Ministry budgeting for CPD, the reliance on donor funding, and the focus on specific sectors such as agriculture. This finding underscores the pressing need for a comprehensive national CPD policy framework in Uganda, like the policy reforms Rwanda (TVET Policy, 2015) is currently exploring, to ensure that professional development is equitable, consistent, and aligned with national skills development goals. Without such a framework, CPD will continue to be a privilege for a few, rather than a standardized professional expectation across all TVET trainers.

4.3.1.2 Relevance of CPD programmes

The data also reveals that CPD programmes offered by institutions are largely relevant to the trainers' technical fields. 51.4% of respondents agreed, and 35.1% strongly agreed with this view, while smaller percentages were neutral (5.4%), disagreed (2.7%), or strongly disagreed (5.4%). The mean score of 4.08, suggests that most trainers perceive CPD programmes as tailored to their areas of expertise, reinforcing the alignment between professional development efforts and vocational specializations. The standard deviation of 1.001 suggests a widespread in responses, indicating that while many trainers benefit from relevant programmes, others might find the content less applicable. Practically, this relevance means that CPD is, in many cases, responsive to trainers' specialization needs, which is essential for maintaining technical competence. However, the variability could stem from a lack of comprehensive needs assessments or uneven involvement of industry stakeholders in program design.

The qualitative data revealed that CPD was generally well-received by trainers because it was designed to address specific skills gaps identified through needs assessments or direct consultations. This demand-driven approach keeps interest levels high, as many trainers see the relevance of the content to their daily work and professional growth. The involvement of industry experts and alignment with curriculum updates and technological shifts further enhances the practicality of these sessions. Some of the key informants had this to say as quoted:

> *"Trainers view it positively, especially because it is a new initiative and demand driven. Since the training is based on needs that cut across many staff members, the interest levels remain high. We have observed active participation, which is a clear indicator that the content resonates well with them."* **KI8, (2025)**
>
> *"Trainers view CPDs as essential for enhancing their competencies, advancing their careers, and improving learning outcomes for students."* **KI9, (2025)**
>
> *"CPD sessions are very relevant, especially in aligning with curriculum updates and technology shifts. When the curriculum changes, CPDs are scheduled to bridge any technical gaps. Sometimes, we bring in industry experts to ensure the training remains practically useful."* **FGD1, (2025)**

Whereas CPD programmes are generally relevant, their alignment with technical fields was not universal due to funding constraints and the self-directed nature of some trainers' CPD pursuits. Some trainers enrol in programs outside their specialization either to diversify their skills or improve their employability elsewhere. Additionally, partial tailoring of CPDs, especially where funding is limited, has resulted in generalized training that may not fully address specific individual technical needs. Some participants noted:

> *"CPDs are only partially tailored to specific technical fields due to funding constraints. For example, the Ministry of Education and Sports has organized CPDs on occupational safety, health, and the environment for staff needs."* **KI9, 2025**

> *"There are two dimensions to this alignment. Some trainers pursue CPD on their own initiative but end up enrolling in programs that do not align with their primary profession. I've observed cases where trainers, hoping to diversify or improve employment prospects elsewhere, deviate from their core field. However, others pursue CPD based on career guidance that ensures their studies remain within their main qualifications."* **KI3, 2025**
>
> *"Most components that are planned should ideally be customized to specific fields so that trainers benefit directly."* **KI2, 2025**

Both the quantitative and qualitative findings agreed that CPD programmes in TVET institutions are largely relevant to trainers' technical fields and address identified skills gaps. Survey results indicated a strong perception of relevance, while qualitative data highlight demand-driven design, industry involvement, and curriculum alignment as key strengths, though gaps remain due to funding limitations and self-directed, non-specialized pursuits. This alignment suggested that whereas CPD was generally effective in meeting trainers' professional needs, a more consistent and fully tailored approach is necessary to ensure all trainers benefit equally.

The findings indicated that CPD programmes within institutions are relevant and aligned with trainers' technical specializations, primarily because they are designed around identified skills gaps and involve industry experts, with coordination by the Ministry of Education and Sports. This aligns with Njenga's (2024a) observation in Kenya, where CPD prioritizes technical and content knowledge, particularly ICT skills and student assessment. However, like Njenga's findings, the current study also revealed gaps, especially where funding constraints and self-directed CPD choices lead to less tailored or generalized training, echoing Chuprynko's (2020) findings on systemic barriers limiting comprehensive CPD engagement. Unlike the Kenyan context where pedagogical knowledge areas are underrepresented (Njenga, 2024b), the emphasis here on collaboration with industry experts suggests a more practice-oriented approach. The variability in CPD relevance reflects ongoing challenges in ensuring equitable access to

well-targeted professional development, underscoring the need for stronger resource allocation and sustained partnerships to enhance the effectiveness of CPD in meeting diverse vocational needs.

4.3.1.3 Accessibility of CPD programmes

Respondents were less decisive when asked whether CPD activities are accessible to all trainers regardless of their location. While 54.1% agreed and 9.5% strongly agreed, a considerable proportion disagreed (23.0%) or strongly disagreed (13.5%). The mean score of 3.23, suggests that while some trainers find CPD accessible, many do not share the same experience. The standard deviation was relatively high at 1.288, reflecting significant variability in accessibility perceptions. Unequal access can perpetuate disparities in trainer competences. The probable causes of these disparities include logistical challenges, inadequate infrastructure, or inequitable resource allocation.

The qualitative data revealed that whereas CPD opportunities existed, their accessibility was often constrained by factors such as funding limitations, focus on specific trades, and donor priorities. Trainers in remote or underserved areas face challenges due to logistical issues and the concentration of programs at certain institutions. Some of the key informants had this to say as quoted:

> *"CPD opportunities are accessible, but not fully inclusive because our programme is limited to agriculture. The government requested us to expand to other trades, but we are constrained by donor funding, which restricts us to this sector."* **KI4, (2025)**
>
> *"Not all deserving participants have access to CPDs, often due to funders prioritizing certain strategic trades, which excludes others."* **KI7, (2025)**
>
> *"While CPD opportunities are increasing, there is a need to enhance their reach, affordability, and relevance to specific trades to ensure true accessibility and inclusiveness across regions."* **KI5, (2025)**

Despite challenges, there was established mechanisms to promote CPD access, such as centralized planning, official communications, budgeting by institutions, and initiatives to conduct training within institutions. The Ministry of Education and Sports plays a key role in coordinating CPD, with some programmes designed to be inclusive within specific institutions like NICA, as noted by some of the key informants:

> *"Accessibility is ensured through official communications from the Ministry of Education and Sports, such as circulars and invitations. The department oversees Instructor training, research and innovation and follows a professional development plan and budget."* **KI9, (2025)**
>
> *"CPDs are typically conducted at the institutional level. We have instructed all institutions to include CPD in their budgets to support trainers attending short courses. Trainers are also encouraged to take the initiative to improve their competencies, particularly in areas where they feel less confident."* **KI1, 2025**
>
> *"At the National Instructors College Abilonino (NICA), CPD programmes are designed to be inclusive and accessible to all trainers of trainer within the institution. The programmes are structured to address the identified gaps across all TVET trainers, ensuring no one is left behind within that context."* **FGD3, (2025)**

Both the quantitative and qualitative findings agreed that whereas CPD opportunities are available, their accessibility is uneven across trainers and institutions. Survey results showed mixed perceptions, with over half agreeing CPD was accessible but a sizable proportion reporting barrier, which aligns with qualitative accounts of funding constraints, trade-specific focus, and logistical challenges. This convergence suggested that although some institutions, have effective systems ensuring high participation, broader national efforts are needed to make CPD access truly inclusive for all trainers regardless of location or specialization.

A review of attendance records from eight CPD trainings conducted at NICA between 2020 and 2024 showed an encouraging average attendance rate of 90%. This high level of participation suggested that CPD opportunities at the institution are largely accessible

to staff and that trainers were both aware of and willing to engage in professional development when opportunities are provided. This provides useful evidence that, within NICA, systems are in place to support widespread staff involvement in CPD activities.

The findings showed a mixed picture regarding the accessibility of CPD activities for trainers across different locations. Whereas some TVET trainers experienced good access supported by structured coordination from departments within the Ministry of Education and Sports; through official communications, budget allocations, and localized training; many still faced significant barriers. These challenges often stem from funding constraints, a narrow focus on certain trades like agriculture, and logistical difficulties that limit inclusion, especially for those in remote or underserved areas. This echoes Njenga's (2024b) work in Kenya, which highlights cost, time constraints, and limited employer support as major obstacles, particularly for teachers in underserved locations without reliable ICT access. The gender and career-stage disparities Njenga notes add further complexities, suggesting that systemic and personal factors compound inequities in CPD participation. Whereas the current study emphasizes logistical and funding challenges, it does not deeply explore these demographic dimensions, indicating an area for future focus. Overall, the results corroborate broader regional patterns where, despite institutional efforts, CPD remained unevenly accessible, underscoring the need for more inclusive, flexible delivery models, expanded funding and targeted support to bridge these gaps in practice.

4.3.1.4 Reception of information on CPD

In terms of receiving timely information about upcoming CPD opportunities, 50% of respondents agreed, 13.5% strongly agreed, while 16.2% disagreed, 8.1% strongly

disagreed, and 12.2% were neutral. The mean score of 3.45, indicates a general sense that information flow on CPD is adequate but not optimal. The standard deviation of 1.160, shows moderate differences in how trainers experience the timeliness of CPD notifications. This suggests that while some trainers are well-informed about CPD opportunities, others might be missing out due to communication gaps within institutions. Potential reasons for this could be the absence of standardized communication channels or institutional inefficiencies in disseminating information.

The qualitative findings revealed that communication of CPD opportunities within institutions was largely informal and somewhat fragmented. Although there were annual work plan and budget that outline CPD activities, there was still no consistent or formalized communication strategy across the board. Trainers often rely on peer-to-peer updates shared through platforms like WhatsApp, alongside occasional official notices. However, even with these mechanisms, the advance notice for upcoming CPD remains inadequate, limiting trainers' ability to plan effectively. Some of the key informants noted:

> *"There are no clear, formal strategies for communicating CPD opportunities. Typically, instructors share information amongst themselves using platforms like WhatsApp."* **KI3, (2025)**
>
> *"The institution shares annual work plans and corresponding budgets, which include CPD schedules. There are also official notices and internal communication platforms like WhatsApp that keep staff informed. However, advance notices could still be improved for better planning."* **FGD1, (2025)**

Both the quantitative and qualitative findings agreed that trainers generally receive information about CPD opportunities, but the timeliness and consistency of communication remain inadequate. Survey resulted show a moderate level of satisfaction, whereas interviews and focused group discussions highlight reliance on informal channels like WhatsApp and peer sharing, with limited use of structured

communication strategies. This alignment suggested that although trainers are often informed, the lack of formal and timely notification systems may reduce participation and hinder effective planning for CPD activities.

The findings indicated that whereas information about CPD opportunities does reach TVET trainers, the communication remained inconsistent and often lacked the predictability needed for effective engagement. This mirrors patterns observed by Njenga (2023b), who noted that CPD announcements in Kenyan institutions often rely on ad hoc channels like WhatsApp or verbal updates, rather than established institutional systems. Although some institutions attempt to integrate CPD scheduling into annual plans, the absence of a coordinated national operationalized framework contributed to fragmented delivery. This aligned with Philogene et al. (2024), who found similar informal patterns in Rwanda, where only a minority of trainers received timely CPD communication. The result was uneven access and planning gaps, reinforcing inequities in participation. For CPD to function as a strategic tool, institutions must invest in structured, timely communication systems that treat information flow as a foundational component of professional learning, not an afterthought.

4.3.1.5 Theoretical and practical components of CPD Session

When asked whether CPD programmes include both theoretical and practical components, 54.1% agreed, 20.3% strongly agreed, 20.3% disagreed, 2.7% strongly disagreed and 2.7% remained neutral. The mean score stood at 3.69 pointing to a generally positive perception, suggesting that CPD programmes attempt to balance theory and practical application. However, the standard deviation of 1.097 indicates that this balance is not consistently achieved across all CPD programmes. This is critical because integrating practical experiences with theoretical knowledge equips trainers

with hands-on skills necessary for effective instruction in technical fields. One likely reason for this inconsistency is the lack of standardized CPD curricula that mandate practical components, or constraints in institutional resources such as labs and equipment.

The qualitative findings confirmed that while CPD programmes are designed to include both theoretical and practical elements, this is not consistently applied across all offerings. Some trainings effectively integrate hands-on practice with theory, particularly when facilitators come from both academic and industry backgrounds. However, other CPDs, especially workshops not focused on technical survival skills, tend to remain largely theoretical, as noted by some of the key informants:

> *"All our CPD trainings incorporate both theoretical and practical components. Facilitators usually include experts from both academia and industry."* **KI1, (2025)**
>
> *"Whether CPD includes hands-on practice often depends on the specific program. The curriculum usually integrates both components, but some CPDs end up being entirely theoretical, especially workshops that don't directly target practical survival skills."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that CPD programmes in TVET generally aim to combine theoretical and practical components, though this integration was inconsistent. Survey results showed a positive overall perception, while interviews reveal that the extent of practical application depends on the program's focus, facilitator expertise, and available resources. This alignment suggested that while the intent to balance theory and practice exists, gaps in standardization and resource provision limit the uniform delivery of hands-on training across all CPD activities.

The findings showed that whereas CPD programmes are generally designed to integrate both theoretical and practical elements, the execution of this balance varies considerably. This inconsistency resonates with Hasanah et al. (2025), who emphasized

the need for blended CPD models that are not just content-heavy but rooted in practice-based approaches like industry internships and action research. Trainers in this study noted that some CPDs leaned too heavily on abstract knowledge, particularly when organized without clear objectives for hands-on learning. Such patterns echo Njenga's (2022a) observation that subject content often overshadows pedagogical strategies, due in part to outdated assumptions about teaching effectiveness. These findings pointed out the need for more intentional curriculum design that not only includes practical components but embeds them as non-negotiable elements, regardless of the delivery mode or provider.

4.3.1.6 Content updates of CPDs

The findings further indicate that CPD sessions are facilitated by knowledgeable and experienced instructors, with 51.4% agreeing, 32.4% strongly agreeing, while only 5.4% disagreed, 2.7% strongly disagreed, and 8.1% were neutral. The mean is high at 4.05, with a comparatively moderate standard deviation of 0.935. This high mean and low variability reflect a strong consensus that the quality of CPD facilitators is generally commendable. Having competent facilitators ensures that the CPD sessions are impactful, enriching trainers with relevant knowledge and skills. However, the slight variation in responses could indicate that not all facilitators meet the same standard, possibly due to differences in recruitment criteria or training for CPD facilitators.

The qualitative findings showed that CPD sessions are often facilitated by knowledgeable and experienced instructors, particularly drawn from industry. This practice helps ensure that the training remains relevant and aligned with current industry standards. Trainers benefit from facilitators who not only understand theoretical

foundations but also bring practical insights, which enhances the overall quality of CPD delivery, as noted by one key informant:

> *"We engage practicing experts in each field. When we identify a training gap, we contact a professional actively working in that specific trade. We bring them in to train our staff, expecting that their knowledge reflects the latest industry standards and practices. That is the approach we currently use through the in-house quarantine program."* **KI8, (2025)**

However, there was no formal, standardized process at the national level for selecting or training these facilitators of CPD. Institutions independently source facilitators based on their judgment, which may lead to variability in facilitator quality across different programmes. One of the key informants stated:

> *"There is no formal, procedural process at the national level for selecting or training CPD facilitators. Institutions independently identify subject matter experts to lead and facilitate CPD sessions."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that CPD sessions are generally facilitated by knowledgeable and experienced instructors, often with valuable industry expertise. Survey results showed strong consensus on facilitator quality, whereas interviews highlighted the benefits of engaging practicing professionals who bring current, practical insights, but also point to the absence of a standardized national selection process. This alignment suggests that while facilitator competence is a strength of CPD delivery, creating formal criteria and training standards could help ensure consistent quality across all institutions and programs.

The findings demonstrated that CPD sessions are typically led by facilitators perceived as competent and experienced, particularly when drawn from industry. This reflected the approach advocated by Hlatjwako et al. (2025), who emphasized the value of engaging dual-qualified professionals with both trade and pedagogical knowledge to

bridge classroom and workplace realities. However, the study also surfaced uneven perceptions of facilitator quality, which may be attributed to the absence of a national standard for facilitator recruitment or training. Like findings in Ethiopia (Negash et al., 2024), this variability affects consistency across programmes, especially where institutions operate without central oversight. Whereas some TVET trainers benefit from well-facilitated, contextually relevant sessions, others experience delivery gaps that undermine CPD credibility. Establishing formal guidelines for CPD facilitation, possibly including accreditation or refresher training, would help raise the baseline and ensure more uniform quality in professional development.

4.3.1.7 Dissemination of Knowledge and Skills Gained from CPD Programmes

Regarding the regular updating of CPD content to reflect current industry trends, 39.2% of respondents agreed, 27.0% strongly agreed, 20.3% were neutral, 8.1% disagreed, and 5.4% strongly disagreed. The mean score of 3.74 indicates that most respondents generally agreed that CPD content is regularly updated. However, the standard deviation of 1.111 shows a wide variation in responses, suggesting that this practice is not consistent across institutions. Outdated CPD content can reduce the relevance and impact of training, leaving trainers less equipped to meet modern industry needs. This inconsistency may result from weak institutional linkages with industry and a lack of structured curriculum review mechanisms.

The qualitative findings revealed that CPD content is often developed through collaboration between institutions, the Ministry of Education and Sports, and industry stakeholders. This partnership approach helps to ensure that CPD programmes remain responsive to evolving industry demands and technological trends, which aligns with the general agreement seen in the quantitative data. Structured engagements such as

workshops, supervision visits, and annual Public-Private Partnership meetings provide platforms for continuous feedback and curriculum alignment, as noted by some of the key informants:

> *"The design of our CPD programs is guided by a needs assessment conducted prior to implementation. We use a co-design approach, collaborating with the Ministry of Education and Sports, industry stakeholders, and consultants. These stakeholders are brought together in workshops to collectively design the most relevant and impactful CPD programs that respond to industry demands and technological changes."* **KI4, (2025)**

> *"We engage industry players' directly in training and establish partnerships that inform us of current industry needs. During supervision visits, especially when monitoring students on internships, we interface with industry representatives who provide feedback on existing gaps and strengths."* **KI1, (2025)**

> *"We have a Public-Private Partnership (PPP) working group that convenes at the college once a year. The group includes industry representatives who offer industrial training and employment opportunities to our continuing and graduate students. During these meetings, we discuss the relevance of our training programs and explore opportunities to attach our trainers to industry for practical exposure."* **FGD1, (2025)**

Despite these collaborative efforts, there was lack a thorough and consistent process for integrating industry feedback into CPD content, and resource constraints, such as outdated equipment, limit the practical alignment with current technologies. Without standardized mechanisms to ensure ongoing industry participation, the full alignment of CPD content with technological trends remained uneven. Some of the key informants had this to say:

> *"The ministry has issued guidelines stipulating that anyone pursuing further studies through CPD must ensure their training is relevant to their field of work and aligns with industry trends. However, there hasn't been a thorough process to involve industry stakeholders directly in shaping CPD, creating a notable gap."* **KI3, (2025)**

> *"To a great extent, the CPD content aligns with current industry needs and technological trends. For example, we recently conducted a training needs assessment at NICA and identified gaps in technical competencies among*

> *trainers. We brought in experts from the world of work to address these gaps. However, the challenge remains that NICA only has basic equipment, which we need to upgrade."* **FGD2, (2025)**
>
> *"The CPD content we have developed incorporates elements of digital skills and aims to align with prevailing technological trends. We base the content on performance appraisals and consult with partners for input on initial drafts. However, we acknowledge that despite these efforts, a gap still exists in fully aligning CPD content with the specific needs of industries and the latest technological innovations."* **FGD3, (2025)**

Both the quantitative and qualitative findings agreed that CPD content is updated to reflect industry trends, but this is not done consistently across all programs. Survey responses indicate general agreement on content relevance, while interviews and FGDs describe collaborative efforts with industry and the Ministry, yet also highlight gaps in systematically integrating feedback and addressing resource constraints. This alignment suggests that while strong partnerships exist, the absence of standardized review mechanisms and modern equipment limits the full and consistent alignment of CPD content with current industry and technological demands.

The findings suggested that although CPD content was frequently updated to reflect industry needs, the processes for doing so lack regularity and coordination. This observation was echoed in Diao et al. (2024), who argued that TVET institutions struggle to systematically integrate technological shifts and evolving workforce demands into CPD frameworks. In this study, trainers acknowledged sporadic efforts such as Ministry-led consultations and ad hoc PPP forums but also pointed to a lack of institutional mechanisms to sustain such collaborations. These inconsistencies parallel Chuprynko's (2020) finding that only a fraction of institutions consistently revise CPD curricula, due in part to financial and logistical constraints. Without structured curriculum review cycles and strong links to industry, CPD risks becoming outdated, limiting its ability to foster agile, future-ready educators. A move toward regularized

partnerships and formal feedback loops with industry actors could substantially enhance the relevance and adaptability of CPD programmes.

4.3.1.8 Building a collaborative knowledge-sharing culture

The findings also show that most respondents felt encouraged by their institutions to share knowledge gained from CPD with colleagues. 45.9% agreed and 25.7% strongly agreed, while smaller percentages disagreed (8.1%), strongly disagreed (2.7%), or were neutral (17.6%). The mean score of 3.84 indicates that, on average, respondents perceive their institutions as supportive of knowledge sharing. This suggests that the practice of disseminating CPD insights among colleagues is generally recognized and valued within the sampled institutions. The standard deviation of 0.993 reflects moderate variability in responses, indicating that the level of encouragement for knowledge sharing is consistent across institutions. This consistency suggests that most trainers experience similar levels of institutional support for sharing CPD outcomes, although some variation exists due to differences in policies or practices at specific institutions. The practical implication is that knowledge-sharing fosters a collaborative learning culture among trainers, potentially amplifying the benefits of CPD across the staff. However, some trainers may not share knowledge due to a lack of formalized mechanisms or incentives.

The qualitative data revealed that although institutions expect trainers to share knowledge gained from CPD sessions, this expectation was not reinforced by formal structures or follow-up mechanisms. Trainers are often designated as trainers-of-trainers with the assumption that they will disseminate the new knowledge, but in practice, this was inconsistently applied. Whereas some institutions may encourage peer learning workshops, these are often side-lined due to heavy teaching loads and institutional

inertia. The absence of monitoring or accountability frameworks weakens the potential impact of CPD on the wider staff body, despite the generally supportive environment suggested by the quantitative findings. Some of the key informants had this to say:

> *"Those trained at the national level are expected to cascade knowledge by training others, essentially serving as trainers-of-trainers. However, there is no follow-up mechanism to verify whether this cascading is happening or effective."* **KI1, 2025**
>
> *"No, currently there is no national framework to ensure that trainers apply what they learn through CPD. Trainers may complete a CPD program but never implement the skills because there is no structured follow-up."* **FGD2, 2025**
>
> *"After attending CPDs, participants are expected to share their knowledge during peer workshops. However, this approach is ineffective because staff are usually overwhelmed with workload and tight teaching schedules. As a result, peer learning sessions are not prioritized."* **FGD1, 2025**
>
> *"There is no clear guideline mandating post-training information sharing. Knowledge sharing only occurs within the training environment and often does not extend to instructors who were not part of the initial training."* **KI3, 2025**

Both the quantitative and qualitative results indicated inconsistent recognition and reward for CPD participation across institutions. Whereas survey responses show mixed perceptions, interviews and FGDs confirm that formal reward structures are largely absent, with recognition often limited to certificates that are not tied to promotions or salary adjustments. This means that although CPD may offer informal career benefits, the lack of institutionalized incentives could weaken motivation for sustained participation.

The findings suggested that whereas many institutions expressed support for peer learning and knowledge sharing post-CPD, actual practices remain informal and largely unsystematic. This reflected broader regional trends identified by Njenga (2023b), who found that collaborative CPD strategies like co-teaching and mentoring are often underutilized despite being recognized as effective. In this study, whereas trainers spoke

of supportive environments, the absence of institutional mandates, follow-up mechanisms, or dedicated time for peer exchange meant that knowledge-sharing efforts were often left to individual initiative. Similar dynamics were observed by Negash et al. (2024) in Ethiopia, where over 70% of teachers reported having no access to structured mentoring. Without institutional accountability or embedded systems, knowledge transfer remained inconsistent, and the collective benefit of CPD diminishes. Creating structured platforms, such as scheduled peer-learning sessions or post-training reports could help operationalize knowledge sharing and amplify CPD outcomes across teaching teams.

4.3.1.9 Recognition and rewards of participants

On whether participation in CPD is recognized and rewarded by institutions, 37.8% agreed, 12.2% strongly agreed, while a significant 31.1% disagreed, 5.4% strongly disagreed, and 13.5% were neutral. The mean score of 3.20 indicates that, on average, respondents hold mixed perceptions regarding institutional recognition and rewards for CPD participation. This suggests that while some trainer's experience acknowledgment, many do not perceive consistent incentives for engaging in CPD. The standard deviation of 1.170 reflects a high level of variability in responses, indicating that recognition and reward practices differ significantly across institutions. This variation implies that some trainers benefit from structured incentives while others do not, highlighting inconsistencies in institutional support for professional development. This is practically significant because the absence of formal incentives may demotivate trainers from actively participating in CPD, and the inconsistency may stem from a lack of policies linking CPD engagement to career advancement or remuneration.

The qualitative findings showed that recognition and rewards for CPD participation are not well established or consistently applied CPD programmes. While certificates of attendance are sometimes issued, these are not universally guaranteed nor directly linked to promotions or formal career advancement. Some of the key informants had this to say:

> *"Currently, we have no recognitions or certificates linked to CPD participation. That is why I mentioned that we need some form of motivator. Since CPD is becoming a requirement for lecturers to renew their licenses, introducing certificates would be timely. It would not only motivate attendance but also serve as a quality assurance tool during license renewals."* **KI8, (2025)**

> *"Currently, there are no incentives in place beyond the certificates of attendance given to trainers after completing a CPD program."* **KI2, (2025)**

Although formal reward structures were still lacking, participation in CPD can informally enhance a trainer's prospects for promotion or competitive advantage during recruitment, even if this pathway was not institutionalized. CPD experiences may add value to one's professional profile but do not automatically translate into promotions or salary adjustments. Some of the key informants had this to say:

> *"Trainers are awarded certificates upon completion of training. Additionally, participation in CPD can enhance a trainer's chances of promotion, as it adds value to their professional profile."* **KI1, (2025)**

> *"Recognition and incentives for CPD participation have not been institutionalized as a practice. Perhaps a new strategy could be developed in the future, but as it stands, it is neither mandatory to issue certificates nor guaranteed that completing CPD will lead to automatic promotion or career advancement. Trainers usually must wait for job advertisements or promotion opportunities where their CPD experience might give them a competitive edge."* **KI3, (2025)**

The findings revealed mixed perceptions among trainers regarded whether CPD participation leads to meaningful recognition or career advancement. Whereas some trainers associated CPD with professional growth, most noted that formal incentives, such as promotions, salary increments, or workload adjustments were rarely tied to

participation. This mirrors Chuprynko's (2020) finding that the absence of tangible rewards discourages consistent CPD engagement, especially when participation requires personal sacrifices. The inconsistency in issuing certificates, combined with their limited utility in promotion processes, reduces motivation and weakens the institutional value placed on CPD. Njenga (2024b) similarly reported that despite broad endorsement of CPD's value, systemic recognition mechanisms were lacking. These findings underscore the need for formalized reward systems that not only recognize CPD participation but also integrate it into career progression pathways, thereby reinforcing its role as a driver of professional excellence and institutional growth.

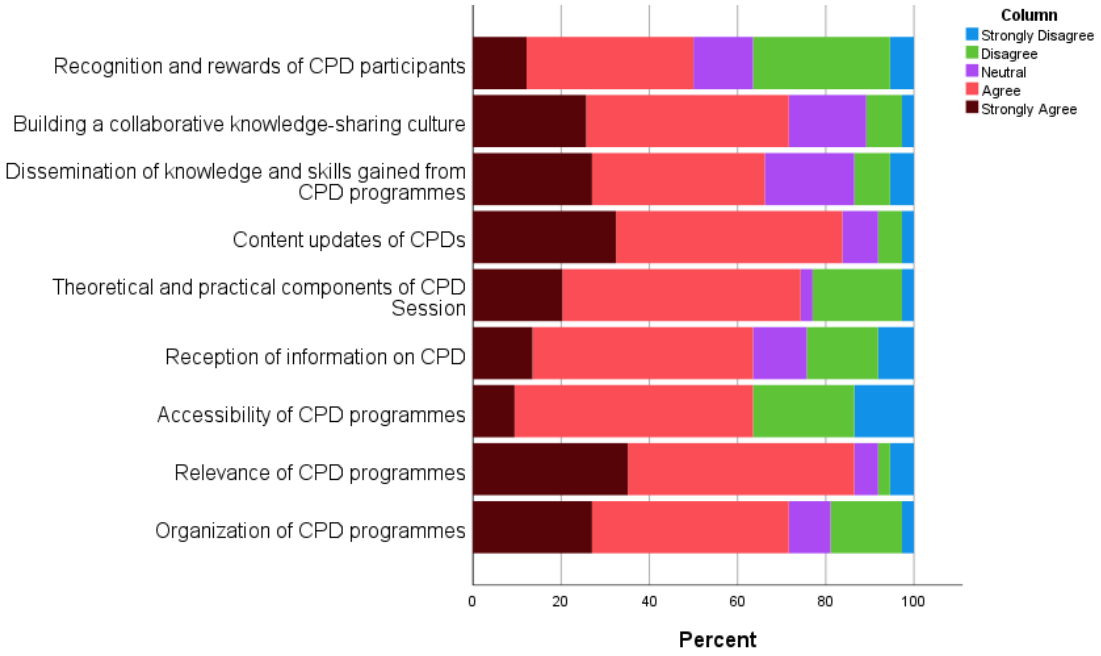

Figure 0.1: The current CPD practices available for TVET Master Trainers

Table 0.4: Correlation Analysis between current CPD practices and TVET Trainer Competences

Correlations			
		Current CPD practices	TVET Trainer Competences
Current CPD practices	Pearson Correlation	1	.459**
	Sig. (2-tailed)		.000
	N	74	74
TVET Trainer Competences	Pearson Correlation	.459**	1
	Sig. (2-tailed)	.000	
	N	74	74

**. Correlation is significant at the 0.01 level (2-tailed).

Source: *Primary Data (2025)*

The correlation analysis in table 4.4 revealed a moderate and statistically significant positive relationship between the current CPD practices implemented in instructor training institutions and the professional competences of TVET master trainers in Uganda. The Pearson correlation coefficient (r = 0.459) indicated that improvements in CPD practices are associated with higher levels of trainer competences. This relationship was statistically significant at the 0.01 level (2-tailed), with a p-value of 0.000, which was well below the conventional threshold of 0.05. Therefore, we accept the hypothesis, which posits that there was a significant relationship between current CPD practices and the professional competences of TVET master trainers in Uganda. This finding suggested that investing in and strengthening CPD practices within instructor training institutions could play a pivotal role in enhancing the skills and competences of trainers, ultimately improving the quality of TVET delivery in the country.

Table 0.5: Regression Analysis between current CPD practices and TVET Trainer Competences

Coefficients					
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.110	.242		12.869	.000
Current CPD practices	.282	.064	.459	4.381	.000

a. Dependent Variable: TVET Trainer Competences

R	R Square	Adjusted R Square	Std. Error	F Statistic	Sig.
.459[a]	.210	.200	.41987	19.195	.000[b]

Source: *Primary data (2025)*

The regression analysis results in Table 4.5 above indicated a statistically significant positive relationship between current CPD practices and the professional competences of TVET master trainers in Uganda. The R Square value of 0.210 showed that current CPD practices explain approximately 21% of the variance in trainers' professional competences. Whereas this is a modest proportion, it was meaningful in the education sector where multiple factors contribute to competences. The model's F-statistic of 19.195 and a p-value of 0.000 confirm that the model was statistically significant, meaning CPD practices reliably predict professional competences. The unstandardized coefficient (B = 0.282) suggested that for every one-unit increase in the quality or extent of CPD practices, the trainers' competences improve by 0.282 units. The standardized Beta coefficient ($\beta = 0.459$) further indicates a moderate predictive strength of CPD practices on competences. The t-value of 4.381 with a corresponding p-value of 0.000 confirms this relationship is highly significant.

These results pointed out to accept the hypothesis which states that there is a significant relationship between current CPD practices and the professional competences of TVET master trainers in Uganda. However, the R Square value also suggests that other factors,

such as institutional support, trainers' motivation, availability of resources, policy environment, and engagement with industry, likely account for the remained 79% variance in trainer competences. Therefore, whereas CPD practices are essential, a more holistic approach integrating these other factors would further strengthen trainers' professional growth and effectiveness.

4.4.2 The strategies used in identifying the training needs of TVET trainers in Instructor Training Institution in Uganda

Table 0.6: Descriptive statistics on the strategies used in identifying the training needs of TVET master trainers

		SD (%)	*D (%)*	*NS (%)*	*A (%)*	*SA (%)*	*Mean*	*σ*
1	My institution uses performance appraisals to identify trainers' CPD needs.	2 (2.7)	12 (16.2)	4 (5.4)	44 (59.5)	12 (16.2)	3.70	1.017
2	Feedback from students is used to determine areas where trainers require development.	2 (2.7)	19 (25.7)	18 (24.3)	25 (33.8)	10 (13.5)	3.30	1.082
3	Industry stakeholders are consulted to align trainer skills with labour market demands.	4 (5.4)	13 (17.6)	10 (13.5)	37 (50.0)	10 (13.5)	3.49	1.101
4	Trainers are involved in identifying their own professional development needs.	6 (8.1)	13 (17.6)	8 (10.8)	38 (51.4)	9 (12.2)	3.42	1.159
5	Regular skills assessments are conducted to identify gaps among trainers.	10 (13.5)	30 (40.5)	14 (18.9)	18 (24.3)	2 (2.7)	2.62	1.082
6	CPD plans are customized based on individual trainer needs.	4 (5.4)	19 (25.7)	10 (13.5)	37 (50.0)	4 (5.4)	3.24	1.070
7	Emerging technologies and industry changes are considered when identifying training needs.	6 (8.1)	10 (13.5)	8 (10.8)	44 (59.5)	6 (8.1)	3.46	1.088
8	There is a formal process for trainers to request specific CPD training.	6 (8.1)	21 (28.4)	12 (16.2)	29 (39.2)	6 (8.1)	3.11	1.154
9	The institution monitors and evaluates the effectiveness of	8 (10.8)	10 (13.5)	15 (20.3)	30 (40.5)	11 (14.9)	3.35	1.210

	training needs identification strategies.

Source: *Primary Data (2025)*

4.4.2.1 Performance appraisals

Most respondents acknowledged that their institutions use performance appraisals to identify trainers' CPD needs. Specifically, 59.5% agreed and 16.2% strongly agreed with this statement, while 16.2% disagreed, 2.7% strongly disagreed, and 5.4% were neutral. This yielded a mean of 3.70, suggesting that institutions are consistent in applying performance appraisals as a tool for determining CPD needs. The standard deviation of 1.017 reflects some diversity in experiences across trainers. The practical implication of this finding is that performance appraisals can serve as a structured mechanism for identifying professional gaps and aligning CPD initiatives accordingly. However, the variation in responses likely stems from how the appraisal results are used; while evaluations may be routinely conducted, the resulting CPD interventions tend to be generic, often targeting entire departments rather than addressing individual trainers' specific development needs.

The qualitative findings showed that annual performance appraisals offer a structured way to identify both individual and departmental skills gaps, which then guide CPD planning. Alongside appraisals, institutions conducted training needs assessments that gather input directly from lecturers about their strengths and areas for improvement. This combined approach, supplemented by observations and support supervision, and helped create a more comprehensive understanding of training needs. Some of the key informants had this to say:

> *"We primarily rely on appraisal forms to identify gaps. We also conduct training needs assessments by asking lecturers what areas they are strong in and where they need improvement. When funding becomes available for*

> *CPD, typically lasting about five days, departmental heads share key training areas with me based on these assessments. It is somewhat like a survey process. Sometimes gaps are identified through teaching allocations; if a particular unit is always avoided, it suggests a skills gap. For example, in Civil Engineering, many would avoid AutoCAD design, so we arranged specialized training to address that."* **KI8, (2025)**

> *"The Human Resources department within the Ministry of Education and Sports conducts needs assessments in institutions. We also rely on annual appraisals, where supervisors recommend areas for staff development. Moreover, through support supervision, we occasionally sit in on classes to observe and identify skill gaps."* **FGD2, (2025)**

> *"At the national level, we primarily rely on annual performance appraisals, quarterly field observation reports, and formal training needs assessments conducted by the Human Resource office to identify the training needs of TVET trainers. These tools help us gather data on competency gaps, emerging skill requirements, and areas where trainers need further development. The combination of these reports provides a comprehensive view that informs CPD planning and prioritization."* **FGD3, (2025)**

Despite the reliance on appraisals and needs assessments, the qualitative data also highlighted challenges in the consistent application and follow-through of these processes. Financial constraints, lack of mandatory requirements, and limited resources sometimes hinder systematic implementation. Moreover, while appraisal data may be collected, CPD responses can be generic rather than tailored to individual needs, reducing the potential impact of such assessments, as stated by one of the key informants:

> *"The ministry promotes needs analysis to identify areas where instructors need skill enhancement. However, this process is not consistently carried out due to financial constraints and the fact that it is not mandatory. Sometimes donor agencies like UNESCO support needs assessments, but even then, implementation is inconsistent because of budget limitations. If an instructor lacks personal resources, they may not pursue CPD even when needs are known."* **KI3, (2025)**

As part of the review, the researcher examined staff appraisal forms for lecturers at NICA covering the period between 2020 and 2024. All lecturers had completed the appraisal process during this time, providing a comprehensive dataset for analysis. The

appraisal form itself was well-structured and designed to evaluate both performance and development needs in a holistic manner. Section B assesses achievement against agreed outputs and targets, using a five-point rating scale (from Poor to Excellent), while Section C evaluates core competencies such as leadership, teamwork, and communication; highlighted areas where further development is needed. Importantly, Section D focuses on performance improvement planning, detailing specific actions to address identified gaps through avenues like training, mentoring, or job rotation. Section E captures reflective comments from the appraisee, the appraiser, and the countersigning officer, ensuring a shared understanding of performance and development goals. Overall, the appraisal forms offered a robust framework that integrates performance measurement with tailored professional growth strategies.

Both the quantitative and qualitative findings agreed that performance appraisals are a common and structured tool for identifying CPD needs in institutions. Whereas survey data shows generally positive perceptions, interviews, FGDs, and document reviews confirm that appraisals, alongside training needs assessments and observations, help pinpoint skill gaps, though follow-through is sometimes generic or hindered by financial and resource constraints. This means that while the framework for targeted CPD exists, its impact depends on consistent application and the tailoring of interventions to individual trainers' needs.

The findings suggested that whereas performance appraisals and training needs assessments are commonly used across institutions to identify CPD needs, their effectiveness hinged on how well they are implemented. On the surface, these tools offer a structured foundation for spotting skill gaps and guiding development plans, echoing what Ismail et al. (2018) observed in Malaysia's CUDBAS system. However, just as in the Ghanaian and South African contexts (Yaqub et al., 2020; Paterson et al., 2024a),

the actual translation of these assessments into tailored CPD remains patchy. Often, appraisals are completed out of obligation, and follow-up actions are inconsistent or absent, particularly in under-resourced institutions. This mirrors the concern raised by Komen and Ong'injo (2024) about the low percentage of staff placed on improvement plans despite undergoing appraisals. In essence, the presence of frameworks does not guarantee impact unless these systems are responsive, adequately funded, and embedded within a culture that values continuous improvement over mere compliance.

4.4.2.2 Student feedback

When asked whether feedback from students is used to determine areas where trainers require development, responses were more varied. 33.8% agreed and 13.5% strongly agreed, while 25.7% disagreed, 2.7% strongly disagreed, and 24.3% remained neutral. The mean score of 3.30 reflects a neutral to mild agreement, indicating that student feedback is only partially integrated into CPD planning. The standard deviation of 1.082 suggests that some instructors feel that student perspectives are valued in identifying development areas, while others think the practice is minimal or absent. The practical implication is that student feedback could provide critical insights into instructional effectiveness and areas needing enhancement. The limited integration may stem from a lack of formal mechanisms to capture and analyse student evaluations.

The qualitative data revealed that student feedback was not systematically or deeply integrated into CPD design and implementation. Although feedback was sometimes collected, the absence of formal mechanisms for analysis and application limits its influence on identifying trainer development needs. Instead, CPD content tends to be shaped by other factors such as donor priorities or performance appraisals, leaving a gap in utilizing valuable insights from students. Some of the key informants had this to say:

> *"We rarely conduct surveys to gather feedback from students about trainer performance."* **FGD2, (2025)**

> *"Unfortunately, student feedback is not systematically incorporated into the design of CPD programs. Typically, the CPDs facilitated by development partners are driven by donor priorities, while government-led initiatives are informed by annual performance appraisals and training needs assessments. There is a gap in creating formal mechanisms to capture and utilize student feedback in shaping CPD content."* **FGD3, (2025)**

> *"Currently, there is no mechanism in place to incorporate student feedback into CPD content design."* **KI9, (2025)**

Despite the limited formal use, some institutions recognized the value of student feedback and attempt to use it informally to guide CPD priorities or support trainers needed improvement. Feedback often arrived through indirect channels, such as comments submitted via registrars or through monitoring documents, but it was rarely analysed in depth to fully inform CPD content. This partial use suggested a foundation that could be expanded into a more systematic process. Some of the key informants had this to say:

> *"We collect student feedback, especially on teaching methods and content delivery, and that guides the CPD topics. But to be honest, we do not analyse the student feedback deeply; if we did, it would give us better insights for CPD planning."* **FGD1, (2025)**

> *"Yes, we collect feedback from students regularly. They often indicate when a trainer is weak in certain areas or struggles with specific parts of the curriculum. This feedback usually reaches us through the academic registrar. In response, we typically assign a mentor to support the affected staff member."* **KI8, (2025)**

> *"There is no formal mechanism for gathering student feedback to inform CPD priorities. The only indirect feedback we get is through student performance. When results are poor, it prompts us to reflect and investigate whether inadequate training might be the cause."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that student feedback was only partially used to inform CPD planning. Survey results show mixed perceptions, while interviews and FGDs reveal the absence of formal mechanisms to systematically collect and analyse student input, with CPD content often shaped more by donor priorities and

performance appraisals. This suggests that although informal feedback channels exist and some value is placed on student perspectives, institutions need to establish structured processes to better integrate student insights into trainer development.

The findings indicated a generally low integration of student feedback into CPD planning, despite broad recognition of its potential value. Whereas some trainers acknowledged the occasional use of student input, these instances appear more incidental than institutionalized, a pattern similarly reported in Rwanda by Kim et al. (2019), where feedback was informally collected but not linked to sustained CPD reforms. In many institutions, feedback mechanisms remain fragmented or informal, which limits their ability to shape relevant and responsive trainer development. Instead, CPD was often driven by top-down policies or external partners, mirroring critiques of donor-driven training frameworks that overlook grassroots realities (Paterson et al., 2024a). Still, the small signals of change, like trainers referencing informal feedback, suggest a possible entry point for building more robust, systematic processes that include student voices as part of a broader effort to align CPD with teaching effectiveness.

4.4.2.3 Participation of industry stakeholders to align CPDs

Regarding consultation with industry stakeholders to align trainer skills with labour market demands, 50% of respondents agreed and 13.5% strongly agreed, while 17.6% disagreed, 5.4% strongly disagreed, and 13.5% were neutral. The mean score of 3.49 suggests a moderate level of collaboration between institutions and industry in shaping trainer development. The standard deviation of 1.101 indicates that trainers experience varying degrees of engagement with industry stakeholders, pointing to a lack of consistency in how this collaboration is implemented. The practical implication is

significant as aligning trainer competences with labour market expectations ensures that graduates are equipped with relevant skills. The inconsistency may be due to weak partnerships between some institutions and industry or a lack of formal engagement frameworks.

The qualitative findings showed that industry involvement in shaping CPD content was gradually increasing but remains inconsistent. Whereas in the past the engagement of industry stakeholders was minimal or informal, the introduction of the TVET Act 2025 and ongoing reforms are driving a shift toward structured, mandatory collaboration. Institutions now recognize the importance of integrating labour market demands into CPD planning, although this engagement was often limited to occasional consultations rather than continuous partnerships. Some of the key informants had this to say:

> *"Previously, the ministry identified emerging skill gaps on its own. However, moving forward, reforms have mandated that 66% of the TVET Institutions' Governing Councils and Board of Governors consist of representatives from the world of work, meaning we cannot make decisions without involving industry stakeholders."* **FGD2, (2025)**
>
> *"Yes, though the engagement is still somewhat limited. After drafting CPD modules, we invite industry stakeholders to review and provide input through consultative meetings. This helps to some extent in aligning the CPD content with the current demands of the labour market. However, more systematic and regular engagement with industry would improve the relevance of our training interventions."* **FGD3, (2025)**
>
> *"Yes, every year we engage with the industry through our Public-Private Partnership (PPP) meetings. These meetings help us know which skills are in demand in the market and guide our CPD focus. I think we need to have these engagements more frequently, not just once a year."* **FGD1, (2025)**

The qualitative findings further highlighted that some institutions are applying structured and evidence-based tools such as Training Needs Assessments (TNAs), tracer studies, and employer feedback to identify skill gaps among trainers. These mechanisms helped to align CPD content with labour market requirements and technological advancements. However, the extent of this practice varies, with some stakeholders

acknowledging that engagement with industry was often limited to specific projects or donor-driven initiatives rather than being a standardized approach. Some of the key informants had this to say:

> *"Yes, VVOB conducted a tracer study to follow up on trainees who were trained at NICA to see where they ended up. Through this process, we also gathered feedback from employers. This information was valuable in improving our programs and identifying the specific training needs of trainers."* **KI4, (2025)**
>
> *"Yes. We use Training Needs Assessments (TNAs), employer feedback, tracer studies, and industry exposure programs to ensure CPD content is evidence-based and aligned with market needs and technological shifts."* **KI5, (2025)**
>
> *"Efforts include labour market scanning and direct employer engagement through tracer studies to understand trainee absorption based on employer feedback."* **KI7, (2025)**

The Ministry of Education and Sports (MoES) actively collaborates with industry stakeholders to review and enhance CPD programmes through structured and inclusive engagements. A review of reports revealed key initiatives such as the ICT Competency Framework Validation Workshop held on 24th April 2025, which brought together the Ministry of ICT, MoES, EdTech consultants, UNESCO, Kyambogo University, and TVET institutions to align ICT integration within education. The recommendation of the meeting was to develop National E-learning platform, develop ICT in Education Policy. The Mapping of Harmonised Entrepreneurship (MAHE) Process Regional Workshop, held from 3rd to 5th December 2024 in Nairobi, convened MoES officials from 13 Eastern African countries to strengthen entrepreneurship training and TVET reforms. Recommendation 1: Enhancing Lifelong Learning in TVET by developing more effective flexible learning pathways (leveraging National Qualifications Frameworks (NQFs) and Recognition of Precious Learning (RPL) systems), improving career guidance, and designing comprehensive Quality Assurance Mechanisms focusing on the quality of TVET trainers.

Similarly, the 21st Century Skills in TVET Workshop on 11th December 2024, organized with UNICEF and UNESCO, focused on embedding future-ready skills into TVET. The VVOB LEAP Steering Committee Meeting on 8th May 2025 engaged principals, MoES officials, and VVOB to assess and plan teacher training efforts. In addition, ongoing Project of Capacity building for industry demand driven TVET. The Management Team (PMT) and Project Management Committee (PMC) sessions involving MoES, institutional principals, Korea Chamber of Commerce and Industries (KCCI), and Korea International Cooperation Agency (KOICA) have played a critical role in monitoring implementation and aligning CPD with labour market demands. Collectively, these engagements underscore the ministry's deliberate and sustained efforts to ensure CPD programs are relevant, inclusive, and aligned with both national priorities and global standards.

Both the quantitative and qualitative findings indicated a moderate but growing level of collaboration between institutions and industry stakeholders in aligning CPD programs with labour market demands. Survey results show varied experiences among trainers, while interviews, FGDs, and document reviews highlight ongoing efforts through formal reforms, structured consultations, and evidence-based tools like tracer studies and employer feedback, although engagement remains inconsistent across institutions. This suggests that while progress is being made, strengthening and standardizing industry partnerships was essential to ensure CPD content remains relevant and responsive to evolving workforce needs.

The findings revealed a growing, but still uneven, alignment of CPD efforts with labour market demands; a dynamic echoed across much of Sub-Saharan Africa and parts of Asia. Although some institutions are beginning to engage industry stakeholders and apply tools like tracer studies, these efforts are often fragmented or limited to pilot

programs. This resonates with the experience in Bhutan (Royal Civil Service Commission, 2019), where a lack of standard frameworks hinders regular engagement with industry. While the TVET Act 2025 is reportedly creating momentum for reform, the findings suggest these shifts are yet to fully take root. Like in Malaysia, where Ismail et al. (2018) found success through deliberate partnerships and data-driven planning, Uganda and similar contexts may need to institutionalize such collaborations beyond project-based arrangements. Until then, CPD efforts risk drifting away from the evolving technological and industrial realities that trainers are expected to respond to.

4.4.2.4 Identification of their own CPDs

Responses were also divided on whether trainers are involved in identifying their own professional development needs. About 51.4% agreed, 12.2% strongly agreed, while 17.6% disagreed, 8.1% strongly disagreed, and 10.8% were neutral. The mean score of 3.42 indicates a moderate level of trainer involvement in identifying their own professional development needs, suggesting partial inclusion in CPD planning processes. The standard deviation of 1.159 reflects considerable variation in experiences, implying that while some trainers feel actively engaged in this process, others do not. The practical implication here is that involving trainers in their own CPD planning can increase engagement and relevance of training. The observed variation may be due to institutional cultures that either encourage self-driven development or rely solely on top-down approaches.

The qualitative findings revealed that trainers are somewhat involved in articulating their professional development needs, mainly through structured processes like performance appraisals and informal engagements such as meetings and one-on-one discussions. However, this participation was not always systematic, and the extent of

involvement varies widely. While self-assessment tools and appraisal forms are used to collect input from trainers, others report minimal or inconsistent involvement, especially in donor-funded programs where priorities may be externally driven. Some of the key informants had this to say:

> *"Yes, trainers often participate by identifying their own development needs during appraisals and internal consultations, ensuring CPDs are relevant."***KI9, (2025)**
>
> *"We include trainers in TNAs. For example, in 2023 during a TNA for welding and fabrication trainers under USDP, trainers participated in workshops to self-assess competencies and propose upskilling needs such as advanced welding techniques and safety compliance."* **KI5, (2025)**
>
> *"Trainers play a role in articulating their development needs primarily during the annual performance appraisal process. They are expected to identify their own training gaps, which are then recorded for planning purposes. Additionally, we gather information through human resource needs assessment surveys. However, there is still room to strengthen this process to ensure that trainers' voices are fully reflected in CPD programming."* **FGD3, 2025**

However, the data also highlighted a constraint stemming from top-down or externally driven CPD structures, which often limit trainers' autonomy in defining and directing their own professional development. In donor-supported contexts, CPD content was often predefined, leaving little room for trainers to influence training agendas. Despite some instances of participatory training needs assessments (TNAs), the overall picture suggested that institutional and funding mechanisms frequently override trainer input. Some of the key informants had this to say:

> *"Trainers have not been actively involved in articulating their own development needs."* **FGD2, (2025)**
>
> *"Trainers usually have limited say in identifying their own needs. Donor funding often comes with predefined conditions, and most of the time, VVOB decides what needs to be done or taught within the CPD programs."* **KI4, (2025)**

The quantitative and qualitative findings both suggested that trainers have a moderate but inconsistent role in identifying their own professional development needs. Whereas some trainers are involved through appraisals and needs assessments, many feel excluded, especially when CPD programs are shaped by external donors or top-down decisions. This mixed involvement highlights the need for institutions to formalize more participatory processes that balance trainer input with organizational priorities to make CPD more relevant and engaging.

Whereas this indicated a degree of recognition for trainer voice, it mirrors Paterson et al (2024a) concern that institutional frameworks often default to hierarchical, externally driven agendas. In contexts influenced by donor funding, CPD priorities are sometimes set without substantial input from the trainers themselves. This disconnect is not unique to Uganda; similar tensions have been reported in South Africa and Kenya (Komen & Ong'injo, 2024). The implication was clear: unless trainers are positioned as co-creators in their professional development, CPD efforts may miss the mark. Closing this gap requires shifting from token consultation toward genuine collaboration in CPD planning, supported by institutional cultures that value professional agency.

4.4.2.5 Regular skills assessments

The responses regarding whether regular skills assessments are conducted to identify gaps among trainers showed lower levels of agreement. Only 24.3% agreed and 2.7% strongly agreed, while a significant 40.5% disagreed, 13.5% strongly disagreed, and 18.9% were neutral. The mean score of 2.62 reflects general disagreement among respondents, indicating that regular skills assessments to identify trainer gaps are not widely practiced. The standard deviation of 1.082 shows variation in responses, suggesting that while assessments may be conducted, this is not done consistently.

Practically, this is concerning because without routine assessments, institutions may not accurately identify evolving skills gaps. The likely reasons include resource constraints, lack of standardized assessment tools, or limited institutional emphasis on continuous evaluation.

The qualitative findings revealed that performance appraisals were the most used approach to assess trainer competencies. In many institutions, trainers were evaluated based on targets they set at the beginning of the year. However, these assessments often lacked a structured system or standard tools that capture specific competencies, leading to a more general and subjective evaluation process. Some of the key informants had this to say:

> *"Trainer competencies are mainly assessed through appraisals. Trainers set targets for the year, and we use those to evaluate them. However, we do not have a specific system to rank trainers in particular competencies."* **KI8, 2025**

The data also revealed that there was an absence of formal, systematic skills audits among TVET trainers. The institutions do not currently implement regular skills assessments, pointed out a structural gap in how institutions evaluate and respond to trainer competency needs, potentially undermining the effectiveness of CPD planning. Some of the key informants had this to say:

> *"No, we have not conducted any formal skills audits."* **KI2, (2025)**
>
> *"This practice is not being implemented at the moment."* **KI3, (2025)**

From document review, a 2022 Trainers Needs Assessment (TNA) conducted under the Vocational Education (VE) Project Phase II across eight Technical Institutes that were: Ogolai, Buhimba, Nawanyago, Lwengo, Sasiira, Basoga Naadhu Memorial, Kilak Corner, and Lokopio Hills, provided critical insights into instructor development gaps. The assessment, which involved 134 instructors, evaluated skill deficits, institutional

capacity, and equipment needs, with particular emphasis on Competency-Based Education and Training (CBET), ICT integration, and industry exposure. Key findings indicated that 70% of instructors lacked practical experience in industry, curricula were poorly aligned with labour market requirements, and gender disparities remained a concern within the TVET sector. Based on these findings, the TNA recommended the adoption of CBET models, investment in ICT infrastructure, and strengthened industry linkages through structured work placements. The results directly informed the design of a targeted training plan aimed at enhancing instructor competencies and supporting the broader goals of Uganda's Skilling Uganda Programme.

Both the quantitative and qualitative findings agreed that regular, systematic skills assessments for trainers are largely lacking. While performance appraisals are used, they tend to be general and subjective, without standardized tools or formal audits to pinpoint specific competency gaps. The 2022 Trainers Needs Assessment further confirms this gap, highlighting significant skill deficits and the need for more structured evaluations to guide effective CPD planning and align training with industry demands.

The findings showed that routine skills assessments are sporadic at best and lack the structure needed for meaningful CPD targeting. Although there is occasional mention of performance appraisals or informal evaluations, these tend to be broad in scope and fail to zero in on specific competencies. This aligns with concerns raised by Aloovi and Sisinyize (2024) in Namibia, where outdated qualifications and limited assessment systems created mismatches between trainer capabilities and institutional needs. Without competency-based audits or regular TNAs, CPD remains reactive rather than proactive. The result was a system where professional development risks becoming generic, with little grounding in actual data. Institutions, particularly in resource-

constrained settings, need to integrate periodic, structured assessments if they are to close skill gaps effectively and adapt to changing occupational demands.

4.4.2.6 Customization of CPD plans

The findings also show mixed responses on whether CPD plans are customized based on individual trainer needs. Half of the respondents (50%) agreed, 5.4% strongly agreed, 25.7% disagreed, 5.4% strongly disagreed, and 13.5% were neutral. The mean score of 3.24 indicates a neutral to mild agreement, suggesting that CPD plans are only partially customized to individual trainer needs across institutions. The standard deviation of 1.070 points to high variability in responses, reflecting uneven practices in tailoring CPD based on personal development requirements. Practically, individualized CPD plans ensure that trainers receive targeted support that addresses their specific gaps, enhancing effectiveness. The variation could be attributed to institutional limitations in human resources planning or the absence of frameworks for personalizing development programmes.

The qualitative findings revealed that while there is an emerging awareness of the importance of individualized CPD planning, most institutions still rely on generalized or department-level approaches. Customization of CPD to individual trainer needs remained limited, primarily due to structural norms and resource limitations. In some cases, appraisals are used to identify personal development needs, but these do not always translate into action due to budgetary constraints or lack of follow-through mechanisms. Some of the key informants had this to say:

> *"We have not addressed individual needs directly; CPD has mostly been organized at the departmental level. So, there is a gap when it comes to personalizing CPD for individual trainers."* **KI8, (2025)**

> *"Currently, CPD is usually designed generically for departments or entire institutions. However, with the new law coming into effect, there is a push for individual trainers to demonstrate personal growth, especially when renewing their licenses."* **KI1, (2025)**

> *"Individualized CPD planning is linked to the appraisal process. When trainers specify their training needs during appraisals, it becomes the institution's responsibility to design CPDs that cater to those needs. However, actual implementation often depends on the availability of funds."* **KI3, (2025)**

The quantitative and qualitative findings aligned in showing that CPD plans are only partially customized to individual trainer needs, with many institutions still favouring generalized or department-level approaches. While there is growing recognition of the value of individualized planning, practical constraints like limited budgets and weak follow-through hinder consistent implementation. This gap suggests that without stronger frameworks and resources, CPD may fail to address specific trainer development needs effectively

The findings suggested a rising awareness about the importance of tailoring CPD to individual trainers, yet this principle often falters in practice. Although some respondents mentioned efforts to align CPD with personal appraisal results, these remain the exception rather than the rule. This reflected a broader pattern seen in Ghana (Yaqub et al., 2020), where CPD was often driven by institutional convenience or donor imperatives rather than a careful reading of individual needs. The idea of personalized CPD remained aspirational in many institutions, hindered by the absence of robust frameworks and follow-up strategies. Whereas the literature from Malaysia (Wan Ngah & Buniyamin, 2021) showed how data systems can enable individualized planning, such approaches are still rare in Uganda's context. Bridging this gap will require not only technical tools but a shift in institutional priorities toward development pathways that treat trainers as diverse professionals with unique trajectories.

4.4.2.7 Emerging technologies and industry changes

On whether emerging technologies and industry changes are considered when identifying training needs, 59.5% agreed, 8.1% strongly agreed, 13.5% disagreed, 8.1% strongly disagreed, and 10.8% were neutral. The mean of 3.46 indicates moderate agreement that institutions are factoring in technological and industry shifts when planning CPD. The standard deviation of 1.088 reflects varied experiences among trainers, suggesting that not all trainers are consistently exposed to CPD opportunities that address emerging technologies and industry changes. The practical implication is critical, as the pace of technological advancement demands that trainers continually update their skills. Barriers to this responsiveness may include limited exposure to industry developments or constrained institutional capacity to adapt quickly.

The qualitative data revealed increasing efforts to include industry stakeholders in identifying skills gaps and validating CPD modules. There was a clear shift from institution-led processes toward collaborative models that emphasize relevance and alignment with labour market demands. However, such engagement was still irregular or insufficiently systematic in some cases. The reforms mandating industry representation on decision-making bodies indicated a strong policy shift, but implementation seems to vary. Some of the key informants had this to say:

> *"Previously, the ministry identified emerging skill gaps on its own. However, moving forward, reforms have mandated that 66% of the TVET Governing Councils and Board of Governors consist of representatives from the world of work, meaning we cannot make decisions without involving industry stakeholders."* **FGD2, (2025)**

> *"Yes, though the engagement is still somewhat limited. After drafting CPD modules, we invite industry stakeholders to review and provide input through consultative meetings. This helps to some extent in aligning the CPD content with the current demands of the labour market. However, more systematic and regular engagement with industry would improve the relevance of our training interventions."* **FGD3, (2025)**

> *"We engage industry players through platforms like the Uganda Skills Development Project (USDP) and sector skills councils. For example, in the 2023 review of the Mechanical Engineering Trainer CPD curriculum, employer consultations led to the inclusion of modules on Computer-Aided Manufacturing (CAM) and predictive maintenance, essential for modern industry."* **KI5, (2025)**

Additionally, the data highlighted the central role of technological advancement in shaping CPD content, delivery, and priorities. Informants acknowledged that digital platforms enhance access to global knowledge and expand CPD reach. They also noted the necessity of ICT integration to maintain competitiveness. Some of the key informants had this to say:

> *"Technology allows us to reach many trainers via online trainings and provides access to global trends and best practices."* **KI1, (2025)**

> *"Integration of ICT is now a requirement. Without it, we cannot compete globally."* **KI3, (2025)**

The quantitative and qualitative findings generally agreed that institutions are increasingly considering emerging technologies and industry changes when identifying CPD needs, though this practice is not yet consistent across all trainers. The policy reforms mandating industry involvement and the growing use of digital platforms reflect positive steps toward aligning CPD with technological advancements, but irregular engagement and limited institutional capacity still pose challenges. This means institutions must continue strengthening systematic collaboration with industry and invest in ICT integration to keep CPD relevant and responsive to fast-evolving market demands.

The findings suggested that although institutions acknowledge the need to align CPD with technology and industry trends, practical implementation was still lagging. Encouraging signed like the inclusion of tech-forward modules and partnerships with industry players, indicated movement in the right direction. Yet, this remained uneven,

and many trainers still operate without sufficient ICT integration in their development plans. This reflected Kim et al. (2019) findings in Rwanda, where trainers rated themselves poorly on the use of educational media and digital tools. While platforms like MOOCs have started to broaden access, most institutions still lacked the infrastructure or strategic clarity to embed these tools deeply into CPD. Lessons from Malaysia, where digital profiling and micro-credentials have supported skills mapping (Ismail et al., 2018), could be instructive. But for now, the findings point to a CPD ecosystem that is slowly evolving; held back more by systems inertia than by a lack of intent.

4.4.2.8 Formal request process for specific CPD training

Respondents expressed mixed views on whether there is a formal process for trainers to request specific CPD training. About 39.2% agreed, 8.1% strongly agreed, while 28.4% disagreed, 8.1% strongly disagreed, and 16.2% were neutral. The mean of 3.11 suggests a generally neutral perception, indicating that formal mechanisms for trainers to request specific CPD training are limited or inconsistently applied. The standard deviation of 1.154 highlights considerable variation in experiences, meaning that some trainers have access to clear request processes while others operate without any structured avenue. This has practical implications because without formal mechanisms, trainers may struggle to articulate or secure training aligned to their developmental needs. The variation could be attributed not to the absence of processes, but rather to a lack of awareness among staff, many do not take time to consult the HR policies or public service standing orders where such procedures are outlined.

The qualitative findings revealed that while formal mechanisms exist for trainers to request specific CPD support, there appeared to be a gap in awareness and utilization of

these structures. This suggested a disconnect between policy and practice. Trainers may not be sufficiently informed about the procedures leading to underuse of available opportunities. As such, the challenge was less about the absence of systems and more about a lack of sensitization and internal communication. Some of the key informants had this to say:

> *"Yes, there are formal channels. Trainers can request specific CPD support through their immediate supervisors. However, many trainers might not be fully aware of these channels."* **KI3, (2025)**

Both qualitative and quantitative findings exposed a recurring gap between policy and practice when it comes to trainers' ability to request CPD. whereas formal structures technically existed, awareness and access remain uneven, leading to underutilization. This pattern was consistent with findings by Paterson et al. (2024b), who noted a disconnect between CPD proposals generated through personal growth plans and their actual implementation. Many trainers appeared unaware of the channels available to them, often due to weak internal communication or limited induction processes. The result was a system where CPD becomes more reactive than demand-driven, skewed toward those who are already informed or connected. Addressing this requires not only better systems but also a cultural shift within institutions to ensure transparency, proactive engagement, and routine sensitization, especially during staff on boarding and professional review processes. Bottom of Form

4.4.2.9 Monitoring and evaluation of identification for training needs strategy

When asked whether the institution monitors and evaluates the effectiveness of training needs identification strategies, 40.5% agreed, 14.9% strongly agreed, 13.5% disagreed, 10.8% strongly disagreed, and 20.3% were neutral. The mean score of 3.35 indicates a moderate level of agreement that institutions monitor and evaluate the effectiveness of

training needs identification strategies, though this consensus is not strong. The relatively high standard deviation of 1.210 reflects considerable variation in how consistently these monitoring and evaluation practices are implemented across different institutions. Monitoring and evaluating training needs identification processes is practically essential for continuous improvement of CPD strategies. The gaps may arise from lack of capacity or unclear evaluation metrics.

The qualitative findings revealed that the Ministry of Education and Sports primarily relies on routine monitoring exercises and support supervision to track the implementation of training activities. This suggested an informal or activity-focused approach to evaluating the effectiveness of the training needs identification process, with emphasis placed on observable outputs rather than structured outcome assessments. Some of the key informants had this to say:

> *"We primarily use monitoring exercises and support supervision to observe which trainings have been conducted and how."* **KI2, (2025)**

Both the quantitative and qualitative findings agreed that formal processes for trainers to request specific CPD training exist but are not consistently utilized or well known. The mixed responses and reported lack of awareness suggest that the main issue lies in communication and sensitization rather than the absence of procedures. This means institutions should focus on improving internal communication and training to ensure all trainers understand and can effectively access these CPD request mechanisms.

Moreover, there was absence of well-defined frameworks or tools for assessing whether training needs have been properly identified and addressed. This pointed to potential institutional gaps in planning, feedback integration, and evidence-based decision-making within the CPD cycle, as noted by one of the key informants:

> *"There is no clear mechanism for tracking the effectiveness of the training needs identification process."* **KI3, (2025)**

The quantitative and qualitative findings agreed that while some monitoring and evaluation of training needs identification occurs, it was inconsistent and largely informal. Institutions tend to focus on tracking activities rather than systematically assessing the effectiveness of how needs are identified and addressed. This gap highlights the need for formal M&E frameworks to improve feedback, ensure accountability, and strengthen CPD planning based on evidence.

The findings revealed that monitoring and evaluation of CPD needs assessments was practiced in name more than in function, often lacking clear frameworks or measurable indicators. Whereas institutions report undertaking M&E activities, these are largely informal, relying on administrative oversight or occasional supervision visits. This was not unlike what was reported in Bhutan and parts of Africa, where CPD evaluations are ad hoc and lack methodological rigor (Royal Civil Service Commission, 2019; Kim et al., 2019). Without structured follow-up mechanisms, it becomes difficult to track whether CPD activities are addressing real needs or producing tangible outcomes. This weakens the entire feedback loop needed to refine professional development strategies. For CPD systems to be genuinely effective, institutions must develop evidence-based M&E frameworks that go beyond formality and feed directly into planning and decision-making cycles.

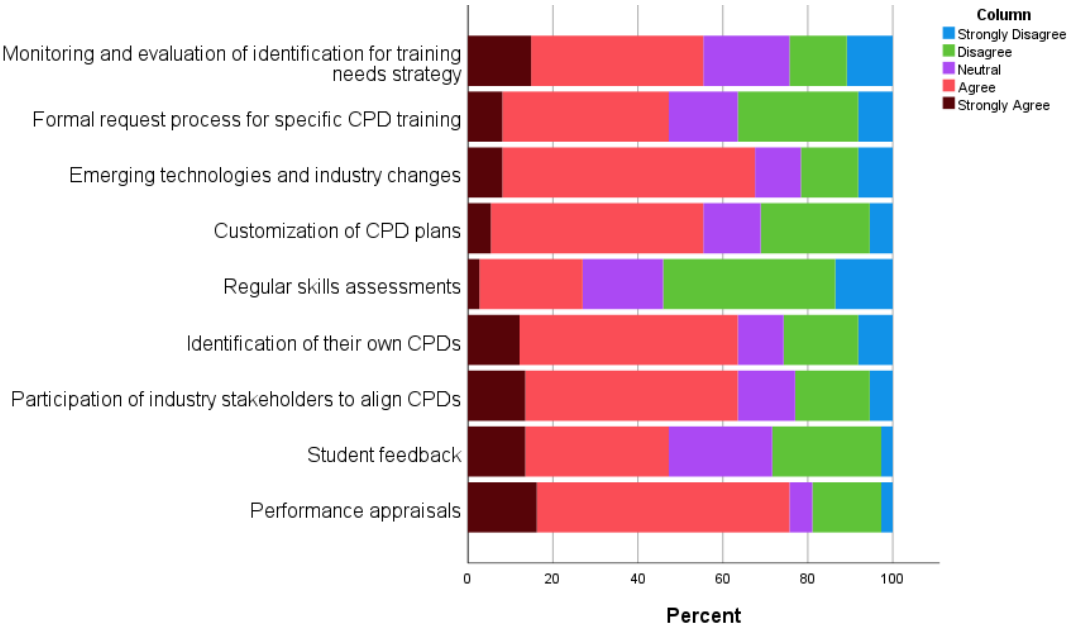

Figure 0.2: Strategies used in identifying the training needs of TVET master trainers

Table 0.7: Correlation Analysis between Strategies for CPD Training needs Identification and TVET Trainer Competences

Correlations

		Strategies for Training needs Identification	TVET Trainer Competences
Strategies for Training needs Identification	Pearson Correlation	1	.480**
	Sig. (2-tailed)		.000
	N	74	74
TVET Trainer Competences	Pearson Correlation	.480**	1
	Sig. (2-tailed)	.000	
	N	74	74

**. Correlation is significant at the 0.01 level (2-tailed).

Source: *Primary data (2025)*

The correlation analysis showed a moderate and statistically significant positive relationship between the strategies used to identify training needs and the professional competences of TVET master trainers in Uganda. The Pearson correlation coefficient (r = 0.480) suggested that as institutions improve their strategies for identifying trainers' development needs the competences of trainers also tend to improve. This relationship

was significant at the 0.01 level (2-tailed), with a p-value of 0.000, well below the 0.05 threshold. This finding supported the hypothesis that effective training needs identification contributes meaningfully to the development of trainers' competences. It implied that systematic and regular assessment of trainers' skill gaps could be a key lever for enhancing the overall quality of TVET instruction in Uganda.

Table 0.8: Regression analysis between Strategies for CPD Training needs Identification and TVET Trainer Competences

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.123	.226		13.828	.000
Strategies for Training needs Identification	.311	.067	.480	4.644	.000

a. Dependent Variable: TVET Trainer Competences

R	R Square	Adjusted R Square	Std. Error	F Statistic	Sig.
.480[a]	.230	.220	.41451	21.567	.000[b]

Source: *Primary data (2025)*

The regression analysis results indicated a statistically significant positive relationship between the strategies used to identify training needs and the professional competences of TVET master trainers in Uganda. The R square value of 0.230 revealed that training needs identification strategies explain 23% of the variance in trainers' competences, which is a meaningful contribution in the context of professional development. The model's F-statistic of 21.567 with a p-value of 0.000 confirms that the regression model was statistically significant and that, strategies for training needs identification are reliable predictors of trainers' competences.

The unstandardized coefficient (B = 0.311) suggested that for every one-unit increase in the effectiveness or quality of training needs identification, there was a corresponding

0.311-unit increase in the professional competences of trainers. The standardized Beta coefficient ($\beta = 0.480$) showed a moderate to strong effect size, highlighted that the way training needs are identified plays an important role in enhancing trainer competences. The t-value of 4.644 and p-value of 0.000 further confirm the statistical significance of this relationship.

Based on these findings, we accept the hypothesis that there was a significant relationship between strategies for identifying training needs and the professional competences of TVET master trainers in Uganda. However, since the R Square is 0.230, it also implies that other factors beyond training needs identification, such as CPD program quality, institutional support, and resource availability, likely influence trainers' competencies. This underscores the need for a comprehensive approach to professional development that incorporates multiple contributing elements.

4.4.3 The adoptable innovative CPD strategies for improving the competences of TVET master trainers in Instructor Training Institution in Uganda.

Table 0.9: Descriptive statistics on the Adoptable and innovative CPD strategies for improving the competences of TVET master trainers

		SD (%)	*D (%)*	*NS (%)*	*A (%)*	*SA (%)*	*Mean*	*σ*
1	My institution integrates digital learning tools (online courses, webinars) into CPD programmes.	6 (8.1)	16 (21.6)	17 (23.0)	33 (44.6)	2 (2.7)	3.12	1.046
2	Mentorship programmes are part of the CPD strategy for trainers.	6 (8.1)	6 (8.1)	4 (5.4)	52 (70.3)	6 (8.1)	3.62	1.030
3	Peer learning and collaborative workshops are used to enhance CPD effectiveness.	4 (5.4)	6 (8.1)	7 (9.5)	49 (66.2)	8 (10.8)	3.69	.964
4	CPD programmes include practical, hands-on learning opportunities relevant to the workplace.	2 (2.7)	6 (8.1)	11 (14.9)	41 (55.4)	14 (18.9)	3.80	.936
5	Mobile learning platforms are used to increase access to CPD resources.	4 (5.4)	19 (25.7)	10 (13.5)	31 (41.9)	10 (13.5)	3.32	1.160
6	Innovative CPD approaches address both technical and soft skills development.	2 (2.7)	10 (13.5)	5 (6.8)	42 (56.8)	15 (20.3)	3.79	1.010
7	CPD programmes are flexible to accommodate trainers' work schedules.	2 (2.7)	12 (16.2)	7 (9.5)	43 (58.1)	10 (13.5)	3.64	1.001
8	There is support for trainers to attend external conferences, seminars, or professional networks.	2 (2.7)	16 (21.6)	11 (14.9)	34 (45.9)	11 (14.9)	3.49	1.076
9	The institution encourages the use of real-world projects within CPD activities.	2 (2.7)	4 (5.4)	13 (17.6)	47 (63.5)	8 (10.8)	3.74	.829

Source: *Primary Data (2025)*

4.4.3.1 Integration of digital learning tools into CPDs

The findings reveal mixed perceptions regarding the integration of digital learning tools, such as online courses and webinars, into CPD programmes. 44.6% of

respondents agreed, 2.7% strongly agreed, while 21.6% disagreed, 8.1% strongly disagreed, and 23% remained neutral. The mean score of 3.12 suggests that the integration of digital learning tools into CPD programmes is moderate but not yet widely adopted. The standard deviation of 1.046 indicates varied perceptions, reflecting inconsistency in how institutions implement digital tools. Practically, this uneven integration limits the scalability and flexibility of CPD offerings, especially for trainers in remote areas. A likely reason for this gap is the lack of infrastructure, digital literacy among trainers, or institutional prioritization of face-to-face learning.

The qualitative data revealed that some institutions and partners have made meaningful efforts to introduce e-learning and blended learning into CPD. Initiatives like digital studios, WhatsApp micro-learning, and online content creation have improved flexibility and access. However, long-term use remained limited due to challenges like poor connectivity, digital fatigue, and post-COVID disengagement. Some of the key informants had this to say:

> *"The institution has set up a digital studio to support online lessons and produce pre-recorded content for both trainers and learners. This has made CPD more flexible because trainers can engage with materials at their own pace, even during busy teaching periods. That said, we have observed that connectivity issues and occasional digital fatigue among trainers still limit the overall effectiveness of the e-learning approach."* **FGD1, (2025)**
>
> *"We launched a WhatsApp-based micro-learning initiative delivering short, interactive lessons and quizzes on topics like digital pedagogy and occupational safety. This low-bandwidth approach was especially successful during COVID-19 restrictions."* **KI5, (2025)**
>
> *"We have promoted e-learning by organizing webinars. During the COVID-19 pandemic, we also tried to introduce Moodle as a learning platform. However, after the pandemic, the platform has not been actively used."* **KI4, (2025)**

However, despite growing awareness of digital learning's potential, the integration of digital tools into CPD remained inconsistent and underdeveloped across institutions. A

recurring issue was the absence of clear policies, strategies, or institutional follow-up, which hampers implementation efforts. Even when digital tools are introduced, a lack of trainer interest or poor tracking of resources undermines their impact. Some of the key informants had this to say:

> *"At the moment, the ministry has not promoted any innovative CPD approaches due to a lack of guiding frameworks. We did train our trainers in ICT and introduced them to a free Zoom account to facilitate online teaching, but unfortunately, there was little interest. Although several partners like VVOB and Knowledge Project provided laptops and tablets, these were treated as personal property, and the ministry did not follow up. As a way forward, we plan to engrave donated equipment to ensure proper institutional tracking."* **FGD2, (2025)**

> *"Digital learning is not yet fully integrated into our CPD programs because most of the trainings are hands-on and require physical presence. So far, we have only had one online training organized by VVOB for staff involved in their project."* **KI8, (2025)**

Although current implementation was uneven, there are signs of growing institutional and policy-level commitment to digital CPD. The Ministry of Education and Sports has initiated structures such as the digital Agenda strategy, ICT framework, ICT department and blended learning models. Future strategies like the National Development Plan IV aim to mainstream digital and modular approaches, though infrastructure remains a limiting factor. Some of the key informants had this to say:

> *"The Ministry of Education and Sports is promoting blended learning as a key approach to CPD. This model combines face-to-face instruction, self-directed learning, online training, and practical field practice. The aim is to provide flexible learning opportunities that can accommodate different learning needs and work schedules."* **FGD3, (2025)**

> *"Yes, the Ministry has developed a digital agenda aimed at integrating digital tools into education, including CPD delivery. Additionally, under the Skilling Uganda Strategy and the forthcoming National Development Plan IV, there is a strong emphasis on modular and competency-based learning approaches. Despite these strategic intentions, poor internet connectivity remains a barrier, which means that face-to-face training is still more common in practice."* **FGD3, (2025)**

> *"The ministry has established an ICT department. Trainers interested in webinars and e-learning platforms can now access them. The main limitation is the lack of awareness among trainers about these opportunities."* **KI3, (2025)**

The quantitative and qualitative findings both showed that digital learning tools are only moderately integrated into CPD programs, with considerable variation across institutions. While some efforts like digital studios, WhatsApp micro-learning, and webinars have improved access and flexibility, challenges such as poor connectivity, limited trainer interest, and lack of clear policies hinder widespread adoption. This suggests that despite growing institutional commitment, significant investments in infrastructure, capacity building, and communication are needed to fully leverage digital CPD opportunities.

The findings reflected a growing awareness and partial adoption of digital tools in CPD, but the picture was uneven with some institutions making headway, while others lag due to structural and contextual limitations. This fragmentation echoes Soklaridis (2024), who noted how digital formats flourished during the pandemic but require intentional design and consistent institutional support to become sustainable. Some of the key informants praised blended learning initiatives but cited issues like unreliable internet, lack of training in digital tools, and minimal follow-up. This is aligned with Aryee et al. (2024), who emphasize that for e-learning to take root, institutions must go beyond technology provision and foster digital pedagogical skills. Encouragingly, there are some efforts like ICT department being formed at MoES, and mentions of digital learning in strategy documents, but unless these signals translate into grounded infrastructure and national guidance, digital CPD risks remaining aspirational rather than transformative.

4.4.3.2 Mentorship programmes

In contrast, mentorship programmes appear to be more prevalent within CPD strategies. A significant 70.3% of respondents agreed that mentorship is part of their CPD strategy, while 8.1% strongly agreed. A smaller portion, 8.1% each, disagreed or strongly disagreed, with 5.4% undecided. The mean score of 3.62 suggests a generally positive perception that mentorship is a common feature of CPD strategies. The standard deviation of 1.030 indicates considerable variability, implying that while mentorship exists, its structure and accessibility vary for different trainers. This has practical implications for building the competences of trainers through guided, experiential learning and professional coaching. However, some institutions may lack formal mentorship structures, which could explain the minority of dissenting responses.

Qualitative findings revealed that although mentorship and peer learning are widely recognized as valuable strategies for professional growth, their implementation remains largely informal across most institutions. Many training institutions support these practices in principle, and some have integrated them into departmental culture. However, formal structures and consistent implementation strategies are often lacking. This pointed to a need for more deliberate design and institutionalization of mentorship frameworks. Some of the key informants had this to say:

> *"We usually combine online sessions with face-to-face workshops. For example, we have partnered with CFAO (formerly Toyota Uganda) to provide online industry-led lessons for our automobile trainers. We also encourage peer mentoring, especially to support new staff, although these engagements tend to happen informally. But we recognize the need to formalize and scale up these peer learning strategies across other departments."* **FGD1, (2025)**

> *"Mentorship plays an important role in developing staff. We attach junior staff to senior members who assign tasks, monitor progress, and sometimes engage them in team planning and teaching."* **KI8, (2025)**

> *"Mentorship and coaching are integral, providing personal support, skills growth, and fostering a culture of continuous professional development."* **KI9, (2025)**

However, there was a notable absence of a coherent, national mentorship framework for CPD in the TVET sector. Whereas the MoES and institutions acknowledge the importance of mentorship, its actual implementation was fragmented and dependent on individual departments or staff initiative. This lack of standardization risks inconsistencies in mentorship quality and access across institutions. Some of the key informants had this to say:

> *"We do not have a streamlined mentorship program at the national level."***KI1, (2025)**

> *"Mentorship programs are not formally established. Typically, a staff member is assigned a supervisor, and it is assumed mentorship will occur, but this is not guaranteed, it depends on the individuals involved."* **KI2, (2025)**

> *"Within the ministry, each department is supposed to have mentorship components and promote peer learning, though implementation varies."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that mentorship was a recognized and valued component of CPD strategies, with most respondents acknowledging its presence. However, the data also reveal significant variability in how mentorship is structured and implemented, with many institutions relying on informal or inconsistent practices rather than formalized programs. This suggests that while mentorship plays a crucial role in trainer development, there is a clear need to establish standardized, institutionalized frameworks to ensure equitable access and consistent quality across all training institutions.

Mentorship, while widely appreciated, was still playing an informal, inconsistent role in the CPD landscape. The literature affirms its value with Zhou et al. (2024) positioning mentorship and peer learning as central to meaningful professional growth,

yet the lived experiences of trainers suggest that mentorship is often left to chance. Some institutions encourage informal coaching, but there was rarely a formal framework or national direction guiding how mentorship was implemented, monitored, or scaled. This mirrors Diao et al (2024) call for structured mentorship embedded into trainers' career trajectories, not just as an optional support but as a core growth mechanism. The current inconsistency pointed to an opportunity: building mentorship into institutional CPD policy could help standardize access and impact, especially when guided by national benchmarks.

4.4.4.3 Peer learning and collaborative workshops

Peer learning and collaborative workshops were also noted as common practices to enhance CPD effectiveness. Specifically, 66.2% agreed, 10.8% strongly agreed, while 8.1% disagreed, 5.4% strongly disagreed, and 9.5% were neutral. The mean score of 3.69 indicates strong agreement that peer learning and collaborative workshops are key components of CPD. The standard deviation of 0.964 suggests moderate variability, meaning that while many trainers benefit from these practices, the experience is not consistent across all institutions. The practical implication is that collaborative approaches not only foster knowledge exchange but also build a community of practice among trainers. One potential reason for the success of this approach is the relative ease of organizing peer learning sessions compared to more resource-intensive CPD methods.

The qualitative findings revealed that collaborative learning; particularly through peer learning and team-teaching approaches; is widely embraced as a practical and effective strategy within CPD frameworks. This emphasis on collaboration appears to support

improved learner outcomes, making it a relevant and accessible tool for professional development across institutions as noted by some of the key informants:

> *"Yes, we practice team teaching as a form of peer learning. It allows trainers to learn from each other through shared sessions and collaborative approaches."* **KI8, (2025)**
>
> *"Yes, peer learning and collaborative workshops are part of our strategy and have been successful in improving teaching practices and learner outcomes."* **KI9, (2025)**

However, there was limited collaboration across institutions. Most CPD activities remain confined to internal initiatives, often relying on available resources rather than structured, ministry-led partnerships. Broader collaboration tends to occur only through externally funded opportunities rather than deliberate policy-driven strategies, as noted by some for the key informants:

> *"CPD trainings are often conducted in-house within training institutions, especially where equipment is available. However, there is minimal collaboration between institutions in CPD delivery."* **KI1, (2025)**
>
> *"The ministry hasn't mandated broader collaboration. Instead, opportunities often arise through donor support, sometimes from other countries, and the ministry then shares these opportunities with trainers."* **KI3, (2025)**

The quantitative and qualitative findings both showed strong agreement that peer learning and collaborative workshops are important and effective components of CPD. Trainers benefit from these approaches within their institutions, but there is limited collaboration across different institutions, with most activities being internal and dependent on available resources or donor support. This suggests that while peer learning is valued and practical, expanding and formalizing inter-institutional collaboration could enhance the reach and impact of CPD initiatives.

The results demonstrated strong institutional buy-in for peer learning and collaborative workshops, with trainers actively participating and valuing these interactive formats.

However, whereas internal momentum is strong, external collaboration between institutions, or at national level, remains sporadic. This echoes Zhou et al. (2024), who argue that unless peer-learning systems are institutionalized across networks and supported by policy, their impact remains localised and often dependent on donor cycles. Respondents described knowledge-sharing sessions, reflection groups, and informal communities of practice; all of which reflect the global shift toward teacher-led learning models (Zhou et al., 2024). Yet without cross-institutional platforms or ministry-level coordination, such practices risk becoming siloed successes. There's room here for a national framework that connects and sustains what is already working at the grassroots.

4.4.3.4 Practical hands-on learning opportunities

Practical, hands-on learning opportunities within CPD programmes also received positive feedback. 55.4% of respondents agreed, 18.9% strongly agreed, 8.1% disagreed, 2.7% strongly disagreed, and 14.9% were neutral. The mean score of 3.80, indicates broad agreement that these elements are well integrated and relevant to workplace needs. The standard deviation of 0.936 shows moderate variation, suggesting that while most trainers experience practical learning in CPD, this is not uniformly the case across all institutions. Practically, hands-on experiences are critical in technical training, as they enable trainers to translate theory into applicable skills. The challenge, however, may lie in institutions that lack access to industry-standard equipment or facilities.

The qualitative data highlighted the importance of incorporating practical, hands-on learning experiences into CPD programmes to bridge the gap between theory and real-world application. Institutions actively engage practitioners and utilize workplace-

based methods such as shadowing and mentoring to address specific skills gaps. Furthermore, at the national level, a Public-Private Partnership framework mandates collaboration between training institutions and industry players to ensure CPD remains relevant and connected to actual workplace demands. Some of the key informants had this to say:

> *"When we identify a skills gap, we do not just teach about it theoretically. We bring in a practitioner to guide staff through practical tasks directly related to that gap."* **KI8, (2025)**
>
> *"These include shadowing, mentoring, peer reviews, and participation in professional networks or communities of practice."* **KI9, (2025)**
>
> *"There is a Public-Private Partnership (PPP) framework at the national level. All institutions are mandated to collaborate with industry players to facilitate hands-on training."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that practical, hands-on learning was a vital and well-integrated part of CPD programs, helping trainers apply theory in real-world settings. While most trainers benefit from these opportunities, some institutions face challenges due to limited access to industry-standard equipment and facilities. Strengthening partnerships with industry through frameworks like Public-Private Partnerships was key to expanding practical training and ensuring CPD remains relevant to workplace demands.

Practical learning emerged as a central pillar of effective CPD, echoing the literature's emphasis on real-world application. Trainers' spoke highly of workplace attachments, hands-on workshops, and sessions led by experienced practitioners; all strategies supported by Paryono & Mashod (2025), who highlight the role of industry exposure in closing the technology gap. However, while some institutions have access to modern labs or industry-standard tools, others still operate with outdated equipment. This inconsistency impacts the depth and applicability of CPD. National frameworks like

Uganda's Public-Private Partnership strategy offer a good foundation, but translating policy into widespread access and industry integration remains a challenge. The findings suggested that deeper partnerships and resource-sharing mechanisms are needed to scale up these practical benefits equitably.

4.4.3.5 Mobile learning platforms

Mobile learning platforms emerged as an area with less consensus. 41.9% agreed, 13.5% strongly agreed, while 25.7% disagreed, 5.4% strongly disagreed, and 13.5% were neutral. The mean score of 3.32 indicates that, on average, respondents moderately agree that mobile learning platforms are incorporated into CPD activities. This suggests that while some trainers are exposed to mobile learning, its use is not yet consistent or widespread across institutions. The relatively high standard deviation of 1.160 reflects substantial variability in responses, indicating that adoption of mobile platforms differs considerably between institutions. This variation shows that some institutions actively integrate mobile learning into CPD, whereas others have limited or no usage. Practically, mobile learning platforms can enhance access to CPD, particularly for trainers in remote areas or with constrained schedules, but barriers such as limited internet connectivity, low digital literacy, and insufficient institutional investment continue to hinder wider adoption.

The qualitative findings indicated that mobile learning platforms have not been formally implemented within CPD programmes, with communication and informal coordination largely taking place through tools like WhatsApp rather than dedicated mobile learning systems. There was also an absence of national initiatives specifically aimed at promoting or supporting mobile learning for CPD, despite recognition of its potential benefits. This lack of structured support and formal integration limits the

effectiveness and reach of mobile learning as a CPD delivery method. Some of the key informants had this to say:

> *"We have not yet implemented formal mobile learning platforms for CPD. However, we coordinate most of our training communications through WhatsApp groups."* **KI8, (2025)**
>
> *"Currently, there are no national initiatives specifically designed to support mobile learning in CPD, though this is an identified need."* **KI2, (2025)**
>
> *"Other than general internet access, there is no structured national initiative for mobile learning."* **KI3, (2025)**

The quantitative and qualitative findings both showed moderate but uneven adoption of mobile learning platforms within CPD, with some institutions using informal tools like WhatsApp while formal mobile learning systems remain largely absent. The variation in responses reflects differences in access, digital literacy, and institutional investment, limiting the reach and impact of mobile learning for many trainers. This suggests a clear opportunity for institutions to develop structured, mobile-friendly CPD modules and provide the necessary support to improve accessibility and effectiveness.

Although mobile learning was beginning to appear in CPD efforts, its use remains mostly informal and peripheral. WhatsApp groups and shared videos are mentioned more frequently than any formal mobile CPD strategy, reflecting the kind of low-bandwidth innovation Al-Omary et al. (2024) explored in Ethiopia and Rwanda. But unlike in those contexts where mobile micro-learning was built into structured CPD programs, most respondents described ad hoc usage without institutional oversight. The absence of a guiding framework or investment in mobile-ready content has left a gap between potential and practice. Mobile learning could offer flexibility and reach, especially for trainers in remote areas or with tight schedules, but only if it is backed by intentional design, capacity building, and digital infrastructure tailored to Uganda's specific constraints.

4.4.3.6 Innovative CPD approaches

The results also show that innovative CPD approaches addressing both technical and soft skills are well implemented. 56.8% agreed, 20.3% strongly agreed, 13.5% disagreed, 2.7% strongly disagreed, and 6.8% were neutral. The mean score of 3.79 indicates strong agreement that innovative CPD approaches effectively address both technical and soft skills development. The standard deviation of 1.010 suggests some variation in how consistently these balanced programmes are implemented across institutions. The practical implication is that trainers are being equipped holistically, preparing them for both instructional duties and workplace dynamics. The slight variability may be attributed to some institutions focusing more on technical skills due to immediate curriculum needs.

The qualitative findings revealed that CPD programmes broadly aimed to equip trainers with a balanced mix of technical skills and soft skills, reflected a growing awareness of their complementary importance. Whereas technical competencies remained a core focus, there was recognition that soft skills are crucial for trainers to meet modern demands effectively. Some of the key informants had this to say:

> *"Yes current CPD largely addresses both technical and soft skills. But there is still a need to integrate more ICT skills to match modern demands."* **KI8, (2025)**
>
> *"All CPD programmes include a component on soft skills, including discussions around attitude change."* **KI1, (2025)**

Despite recognition of the importance of soft skills, the findings indicated that their integration into CPD was often inconsistent and secondary to practical, hands-on training. Many programmes prioritize technical skill development, partly because these are seen as more immediate or measurable, while soft skills tend to be addressed sporadically or within limited project contexts. This uneven approach may contribute

to ongoing employer concerns about graduates' preparedness for workplace realities that require interpersonal and adaptive skills. Some of the key informants had this to say:

> *"There has been limited emphasis on soft skills. The major focus of CPD has been practical work, even though employers have raised concerns that many TVET graduates lack soft skills."* **KI2, (2025)**
>
> *"Through short-term projects, the ministry incorporates both soft and hard skills, but these opportunities are often limited to specific project beneficiaries."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that innovative CPD approaches addressing technical and soft skills are well implemented, with a strong emphasis on technical training complemented by growing attention to soft skills. However, soft skills integration remains inconsistent and often secondary to hands-on technical training, reflecting a gap that affects graduates' readiness for workplace challenges. This suggests institutions should prioritize formalizing soft skills development within CPD to produce trainers who are better equipped for both instructional roles and the evolving demands of industry.

There was growing acknowledgment in both survey and interview data that CPD needs to develop not just technical capacity but also soft skills like communication, attitude, and digital adaptability. This was echoed in the competency frameworks proposed by Ismail et al. (2018) and Diao et al. (2024), who emphasize a holistic view of trainer development that includes personal and pedagogical traits. Yet in practice, soft skills tend to be under-emphasized, often tacked on rather than integrated. Trainers noted that technical workshops dominate, while sessions on collaboration, creativity, or self-leadership are rare. Still, some movement was happening: a few institutions are incorporating reflective practice and digital fluency modules. But the shift toward

balanced CPD remained incomplete and would benefit from policy-level guidance to ensure soft skills are treated as core, not supplementary.

4.4.3.7 Flexibility for CPD Programmes

Flexibility of CPD programmes to accommodate trainers' work schedules received positive affirmation. About 58.1% agreed, 13.5% strongly agreed, while 16.2% disagreed, 2.7% strongly disagreed, and 9.5% were neutral. The mean score of 3.64 indicates that, on average, respondents perceive CPD programmes as sufficiently flexible to align with their work schedules. This suggests that flexibility is generally recognized as a feature of CPD, supporting trainers' ability to participate without compromising their teaching responsibilities. The standard deviation of 1.001 reflects moderate variability in responses, showing that while many institutions provide flexible CPD options, this is not uniformly implemented across all training centres. This variation implies that some trainers may still face scheduling challenges that limit participation, highlighting the need for broader adoption of flexible CPD arrangements.

The qualitative findings revealed a strong pattern of scheduling CPD activities during term breaks to ensure minimal interference with regular teaching duties. This scheduling approach reflects a strategic attempt to accommodate trainers' workloads. However, there remained a call for even greater flexibility, as not all trainers are free during holiday periods due to other professional or personal commitments. Some of the key informants had this to say:

> *"CPD sessions are mostly scheduled during term breaks or holidays to avoid interfering with teaching responsibilities. However, when an urgent skills gap is identified, management organizes targeted training even during the semester. Still, we think there's a need for more flexible arrangements because some trainers remain occupied with other commitments even during the holidays."* **FGD1, (2025)**

> *"We ensure CPD is scheduled at times convenient for all departments. We allocate dedicated time, such as half-days, full days, or even a week, and ensure it is uninterrupted while students continue with practical tasks."* **KI8, (2025)**

> *"Most CPD programmes are scheduled during holidays. When held during teaching periods, they are usually brief, lasting three days to a maximum of two weeks, depending on the program."* **KI1, (2025)**

Both the quantitative and qualitative findings agree that CPD programmes generally offer flexibility to accommodate trainers' work schedules, often by scheduling sessions during term breaks to minimize disruption. However, this flexibility is not universal, as some trainers face competing commitments even during holidays, highlighting the need for more adaptable and modular CPD formats. Institutions should balance scheduling to enhance participation while considering trainers' personal time and workload pressures.

Trainers generally viewed CPD scheduling practices as flexible and accommodating, particularly where sessions were timed during academic breaks. This responsiveness was important, especially given trainers' multiple responsibilities. However, the picture was not perfect with some trainers still struggling to attend due to family or travel constraints, and the assumption that all are free during breaks does not hold up. The literature supports this need for adaptable formats: Aryee et al. (2024) and Zhou et al. (2024) highlight modular CPD and asynchronous learning as effective ways to meet diverse scheduling needs. While flexibility exists in principle, in practice it was still tied to a one-size-fits-most logic. Expanding modular and on-demand learning options could make participation more inclusive, particularly for trainers balancing professional and personal demands.

4.4.3.8 External conferences, seminars or professional networks

Regarding support for trainers to attend external conferences, seminars, or professional networks, 45.9% agreed, 14.9% strongly agreed, 21.6% disagreed, 2.7% strongly disagreed, and 14.9% were neutral. The mean score of 3.49 indicates that, on average, respondents perceive a moderate level of institutional support for attending external professional events. This suggests that some trainers have access to such opportunities, but the practice is not yet widespread across all institutions. The standard deviation of 1.076 reflects considerable variation in responses, showing that support for participation in conferences, seminars, and professional networks is inconsistently provided. This variation implies that while certain trainers benefit from exposure to external learning, others lack access due to differences in institutional policies, funding availability, or administrative priorities. Participation in these events remains practically important, as it allows trainers to engage with global best practices and emerging trends in TVET.

The qualitative findings indicated that while opportunities to attend external conferences or seminars do exist, institutional support remained limited and largely informal. Most trainers access such opportunities individually or through external partners, rather than through structured or funded initiatives by their institutions. This pointed to a need for stronger organizational commitment and budgetary allocation to support trainer participation in professional learning events. Some of the key informants had this to say:

> *"Yes, there are provisions for trainers to attend external learning events such as conferences or seminars though most of these opportunities have been individually sourced. As an institution, we don't yet have a strong culture of funding staff to attend such events. However, when someone identifies a conference or seminar, they are allowed to attend. Sometimes, development*

> *partners or organizations invite us to workshops, and when they specify the kind of participants needed, I nominate staff accordingly."* **KI8, (2025)**
>
> *"No formal provisions exist; attendance only happens through support from Educational Development Partners."* **KI9, (2025)**

The findings further showed that support from the MoES for external CPD was irregular and often reliant on donor funding rather than internal planning or policy. While some trainers benefit when opportunities and resources align, this support was not consistent or widely accessible. There was potential for scaling up ministry-backed initiatives to ensure equitable participation across training institutions. Some of the key informants had this to say:

> *"The ministry rarely supports trainers to attend external conferences, though occasionally some have been supported."* **KI1, (2025)**
>
> *"When trainers attend external professional events, it is usually through donor support."* **KI2, (2025)**
>
> *"Whenever opportunities arise and funding is available, the ministry is open to supporting participation in such events."* **KI3, (2025)**

The quantitative and qualitative findings both showed moderate but inconsistent support for trainers to attend external conferences, seminars, and professional networks, with many opportunities accessed individually or through external partners rather than formal institutional backing. This indicates a gap in structured funding and clear policies within institutions and the ministry, limiting equitable access to these valuable professional development experiences. To address this, institutions should establish dedicated budgets and transparent procedures to ensure broader, consistent support for trainers' participation in external learning events.

Support for attending external CPD events like conferences and seminars appeared modest and uneven. There was recognition of their value, but little in the way of structured support. Much of the participation described was self-initiated or donor-driven, which reflected the challenges noted in UNESCO (2024) on institutionalizing

external engagement. Trainers who manage to attend benefit from networking and exposure, but many are left out due to lack of funding or formal mechanisms. This inconsistency mirrors broader regional patterns where ministries promote CPD in theory but rarely budget for external participation. A few institutions offer limited sponsorships, but without a national policy framework or dedicated CPD funding, these remain the exception. Scaling external CPD opportunities required stronger institutional buy-in and policy-backed financial commitment to level the playing field.

4.4.3.9 Usage of real-world projects

The study found strong support for the use of real-world projects within CPD activities. 63.5% agreed, 10.8% strongly agreed, while 5.4% disagreed, 2.7% strongly disagreed, and 17.6% were neutral. The mean score of 3.74 reflects strong agreement that real-world projects are incorporated into CPD activities, highlighting their value in connecting training with practical workplace challenges. The standard deviation of 0.829 indicates moderate variation, suggesting that while many institutions emphasize practical projects, this practice is not yet consistent across all settings. This approach is practically significant as it enhances problem-solving skills and contextual learning. The moderate variation likely reflects challenges such as limited equipment, outdated facilities, and budget constraints that prevent every trainer from engaging in individual real-world projects during CPD.

The qualitative findings revealed a clear emphasis on incorporating industry-linked and real-life projects into CPD activities, aligning with the practical nature of TVET. Participants described ongoing efforts by institutions and development partners to promote hands-on learning experiences for trainers, particularly through targeted training opportunities and partnerships. This approach reflects a broader understanding

of the importance of contextual, skills-based learning in enhancing CPD effectiveness. Some of the key informants had this to say:

> *"Yes, some development partners invite us for industry-based training. For example, two staff were recently nominated to attend training in pedagogy and solar technology at Nakawa, organized by GIZ. Whenever we receive such opportunities with specific trade requirements, we send the appropriate staff, and they generally respond well."* **KI8, (2025)**
>
> *"Absolutely. Real-life projects are integral to TVET's hands-on approach, and trainers are expected to engage in practical, real-world tasks during CPD."* **KI3, (2025)**

Both the quantitative and qualitative findings agreed that real-world projects are a key component of CPD, valued for linking training to practical workplace challenges and enhancing hands-on learning. While many institutions actively incorporate industry-linked projects, inconsistencies remain due to resource limitations and access to up-to-date equipment. To improve consistency and impact, institutions should focus on resource sharing and strengthen partnerships with industry to broaden trainers' opportunities for engaging in meaningful, practical CPD experiences.

Trainers and stakeholders alike emphasized the importance of real-world, industry-aligned learning in CPD design, highlighted how these experiences enhance relevance and motivation. Quantitative results showed broad support, whereas qualitative interviews offered concrete examples like development partners embedding practical modules and institutions inviting professionals to co-teach. These findings aligned closely with the literature, especially Mandelid et al. (2024) and Paryono & Mashod (2025), who document how real-industry engagements sharpen trainers' competencies and reduce technology lag. But while intent was high, access remains uneven. Some institutions lack the infrastructure or partnerships to offer robust experiential learning. Expanding collaborations and pooling resources, perhaps through regional hubs or

mobile simulation labs, could ensure more trainers benefit from these high-impact approaches.

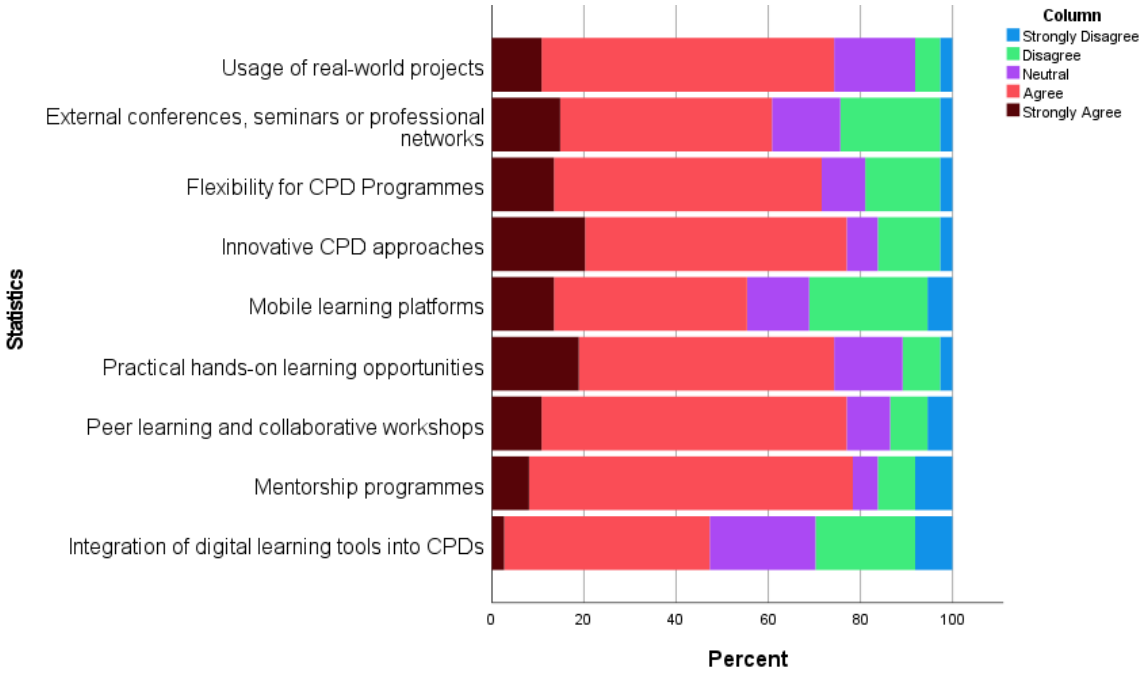

Figure 0.3: Adoptable and innovative CPD strategies for master trainers

Table 0.10: Correlation analysis between Adoptable and innovative CPD strategies and TVET Trainer Competences

Correlations

		Adoptable and innovative CPD strategies	TVET Trainer Competences
Adoptable and innovative CPD strategies	Pearson Correlation	1	.550**
	Sig. (2-tailed)		.000
	N	74	74
TVET Trainer Competences	Pearson Correlation	.550**	1
	Sig. (2-tailed)	.000	
	N	74	74

**. Correlation is significant at the 0.01 level (2-tailed).

Source: *Primary Data (2025)*

The correlation analysis in table 4.10 revealed a moderate to strong and statistically significant positive relationship between adoptable and innovative CPD strategies and

the professional competences of TVET master trainers in Uganda. The Pearson correlation coefficient (r = 0.550) indicates that the more instructor training institutions adopt innovative CPD approaches, such as digital learning tools, mentorship programmes, blended learning, and industry collaborations; the higher the competences of the trainers are likely to be. This relationship was significant at the 0.01 level (2-tailed), with a p-value of 0.000, which is far below the 0.05 threshold. This finding supported the hypothesis that innovative and adaptable CPD strategies play a critical role in enhancing the professional capabilities of trainers. It suggested that scaling up such strategies could be instrumental in addressing competency gaps and improving the effectiveness of TVET education in Uganda.

Table 0.11: Regression Analysis between Adoptable and innovative CPD strategies and TVET Trainer Competences

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.847	.237		12.007	.000
Adoptable and innovative CPD strategies	.363	.065	.550	5.588	.000

a. Dependent Variable: TVET Trainer Competences

R	R Square	Adjusted R Square	Std. Error	F Statistic	Sig.
.550[a]	.302	.293	.39465	31.222	.000[b]

Source: *Primary Data (2025)*

The regression analysis results in Table 4.11 revealed a statistically significant positive relationship between adoptable and innovative strategies and the professional competences of TVET master trainers in Uganda. The R Square value of 0.302 indicated that innovative CPD strategies explain approximately 30.2% of the variance

in trainers' competences, which was a substantial proportion and highlights the importance of these strategies in enhancing professional skills.

The overall model was statistically significant, as demonstrated by the F-statistic of 31.222 and a p-value of 0.000, confirming that the model reliably predicts trainers' competences based on the adoption of innovative strategies. The unstandardized coefficient (B = 0.363) suggested that for every one-unit increase in the implementation of adoptable and innovative CPD strategies, trainers' competences increase by 0.363 units. The standardized Beta coefficient ($\beta = 0.550$) points to a strong effect size, meaning that innovative CPD approaches are a key predictor of professional competency development among TVET trainers. The t-value of 5.588 and corresponding p-value of 0.000 further confirmed that the relationship between innovative CPD strategies and trainers' competences was highly statistically significant.

This evidence supports the hypothesis, which posits that there is a significant relationship between adoptable innovative CPD strategies and the competences of TVET master trainers in Uganda. Despite this strong association, the R Square value suggests that about 69.8% of the variance in trainers' competences is explained by factors outside of innovative strategies alone. This implied that other elements, such as institutional capacity, funding, trainer motivation, and quality of CPD content likely play influential roles, underscoring the need for a multifaceted approach to enhancing trainer competencies.

4.4.4 The Intervening role of status of Instructor Technical Training Institutions in the relationship between CPD strategies and TVET Trainer Competences.

Table 0.12: Descriptive Statistics on Perceptions of status of Instructor Technical Training Institutions as an intervening variable in the relationship between CPD strategies and TVET Trainer Competences

		SD (%)	*D (%)*	*NS (%)*	*A (%)*	*SA (%)*	*Mean*	*σ*
1	The institution has adequate infrastructure to support effective CPD activities.	2 (2.7)	14 (18.9)	22 (29.7)	28 (37.8)	8 (10.8)	3.35	.999
2	There is sufficient funding allocated for CPD programmes at my institution.	6 (8.1)	31 (41.9)	14 (18.9)	17 (23.0)	6 (8.1)	2.81	1.131
3	Management actively supports and promotes continuous professional development.	0 (0)	12 (16.2)	7 (9.5)	44 (59.5)	11 (14.9)	3.73	.911
4	The institutional culture values lifelong learning and professional growth.	0 (0)	8 (10.8)	8 (10.8)	50 (67.6)	8 (10.8)	3.78	.781
5	Trainers have access to up-to-date instructional resources and technology.	0 (0)	18 (24.3)	15 (20.3)	39 (52.7)	2 (2.7)	3.34	.880
6	Institutional policies clearly define CPD expectations and requirements for trainers.	2 (2.7)	14 (18.9)	19 (25.7)	34 (45.9)	5 (6.8)	3.35	.957
7	There are mechanisms in place to monitor trainers' participation in CPD.	4 (5.4)	24 (32.4)	7 (9.5)	37 (50.0)	2 (2.7)	3.12	1.072
8	Collaboration exists between the institution and industry partners to support CPD.	6 (8.1)	18 (24.3)	19 (25.7)	25 (33.8)	6 (8.1)	3.09	1.112
9	Institutional leadership communicates the importance of CPD regularly to staff.	0 (0)	8 (10.8)	9 (12.2)	42 (56.8)	15 (20.3)	3.86	.865

Source: *Primary Data (2025)*

4.4.4.1 Infrastructure support effective CPD activities

The findings in table 4.12 reveal strong leadership and culture support for CPD but significant challenges with funding, infrastructure, resources, policies, monitoring, and

industry collaboration. Regarding perceptions of institutional infrastructure to support effective CPD, 37.8% of respondents agreed, 10.8% strongly agreed, 29.7% were neutral, 18.9% disagreed, and 2.7% strongly disagreed. The mean score of 3.35 suggests a moderate perception of adequacy, leaning slightly toward agreement, though not definitively positive. The standard deviation of 0.999 reflects very high variability in responses, indicating that access to infrastructure varies significantly across institutions. In practical terms, this means that while some environments may be equipped to support CPD activities, others likely fall short, limiting training effectiveness. This unevenness likely stems from disparities in institutional investment and development priorities.

The qualitative findings highlighted a wide disparity in the adequacy of infrastructure across instructor training institutions, especially regarding digital readiness and availability of modern training equipment. Whereas most institutions have basic infrastructure many still lack up-to-date tools, ICT resources, and learning management systems essential for delivering CPD at an industry-aligned standard. Some of the key informants had this to say:

> *"We have the basic infrastructure needed to run CPD sessions, and most of the trainings have been conducted in-house. Where equipment is lacking, we borrow or hire as needed. However, we still lack modern technology, and going forward, we need to upgrade our workshops and ICT labs to facilitate online learning and the use of learning management systems."* **KI8, (2025)**
>
> *"The infrastructure is functional, but the tools, machines, and equipment are very basic. When advanced training is required, we usually collaborate with institutions like Technical College Lira. However, in terms of digital readiness, there are not enough computers, and we lack systems like a Learning Management System (LMS). We are planning to revamp these areas. KOICA has shown interest in supporting us to create a model instructor's college at NICA."* **FGD2, (2025)**
>
> *"In terms of infrastructure, the institutions have adequate buildings to host CPD trainings and accommodate trainees. The facilities can support training, but not to the level expected in fully industrialized environments. Most of what we have are demonstration facilities rather than fully equipped*

> *industrial setups. The biggest gap is in developing CPD programs that are truly aligned with industry standards. Regarding ICT, there is potential for institutions to collaborate with industry partners to develop more robust programs."* ***KI3, (2025)***

While infrastructure challenges persist, some institutions exhibited promising developments in digital connectivity and demonstrate willingness to collaborate or self-fund to bridge gaps. These strengths; though not uniformly distributed; point to the potential for strategic partnerships and internal leadership commitment as mechanisms to strengthen CPD infrastructure and implementation across the board. Some of the key informants had this to say:

> *"The institution is well-equipped with a fibre optic LAN and high-speed internet provided through the Research and Education Network for Uganda (RENU), which the college subscribes to. We also benefit from Eduroam services that offer offline connectivity options, supporting flexible learning environments."* **FGD1 (2025)**

> *"We work with NICA, NTC Kaliro, NTC Mubende, and NTC Unyama. In terms of infrastructure, these institutions are adequately equipped. The leadership is committed and has the will to support CPD."* **KI4, (2025)**

The quantitative and qualitative findings aligned in showing a mixed picture of institutional infrastructure supporting CPD, with some institutions adequately equipped while others lack modern technology and industry-standard tools. This variability limits the overall effectiveness and consistency of CPD delivery across the sector. Addressing these gaps will require targeted investments, regular infrastructure audits, and strengthened partnerships to ensure all institutions meet a minimum standard for physical and digital readiness.

The findings revealed a mixed picture of institutional infrastructure supporting CPD, a reality that mirrors wider patterns across the African TVET landscape. While most institutions possess basic physical facilities like workshops and classrooms, they fall short in providing modern equipment, functional laboratories, or integrated digital

learning platforms. This aligned with Kahiga et al. (2024), who found that despite high workshop availability in Kenyan TVET institutions, the absence of science labs in over half the schools and outdated tools severely limited trainer preparedness. Similarly, Uganda's over-reliance on a single public training institution, as highlighted by the Ministry of Education and Sports (2016), exacerbates this infrastructure gap. However, the study also uncovered promising examples of digital innovation and resourcefulness, particularly where institutions have leveraged partnerships to improve ICT access. These variations underscore the importance of fostering strategic infrastructure development and equipping all institutions with industry-relevant tools to ensure a more uniform and effective CPD environment.

4.4.4.2 Funding allocated for CPDs programmes

On institutional funding for CPD, 41.9% of trainers disagreed, 8.1% strongly disagreed, 18.9% were neutral, 23.0% agreed, and 8.1% strongly agreed. The mean score of 2.81 indicates that, on average, respondents perceive institutional funding for CPD as inadequate. This suggests a general concern among trainers that financial support for professional development is insufficient to meet their training needs. The standard deviation of 1.131 reflects substantial variability in responses, showing that experiences with CPD funding differ widely across institutions and departments. This variation implies that while some trainers may receive adequate support, many others face limited access due to inconsistent or uneven allocation of resources. Practically, these findings highlight that funding constraints remain a major barrier to CPD participation, affecting the accessibility, scope, and frequency of training opportunities.

The qualitative findings revealed that while some institutions have recently secured dedicated budgets for CPD, overall funding remained inconsistent, unsustainable, and

often insufficient. Many institutions still rely on donor-funded projects or self-sponsorship by staff. This created significant disparities in CPD access and undermines systematic planning for long-term trainer development. The sustainability of current funding structures was also uncertain, with concerns about whether budget allocations will continue or grow to meet evolving needs. Some of the key informants had this to say:

> *"Recently, we secured a dedicated budget vote for CPD, which is a new development. Previously, staff attended CPDs through projects or self-sourced opportunities. I am not sure how sustainable this funding will be, but if it continues, we can keep addressing existing gaps."* **KI8, (2025)**

> *"No, funding is inconsistent, and the main challenges include inadequate financial resources, time constraints, and balancing work with CPD participation."* **KI9, (2025)**

> *"Currently, CPD funding is insufficient. While we do make plans for CPD activities, sometimes there are no actual budget allocations to support them."* **KI2, (2025)**

Additionally, the existing CPD funding; where available; was often too limited to cover the full range of training needs. Institutions struggle to meet the rising costs of specialized training, and current budgets are typically restricted to basic skills enhancement rather than long-term academic or professional advancement. Some informants cited minimal national funding allocations, which prevent institutions from organizing more than one or two CPD sessions per year, thereby limiting both frequency and depth of capacity building. Some of the key informants had this to say:

> *"Funding does exist, but it is not enough to meet the full scope of CPD needs for trainers."* **KI3, (2025)**

> *"Yes, the institution has a dedicated budget specifically for CPD activities aimed at skill enhancement. However, this funding does not extend to support academic advancement such as degree programs. We feel the budget could be increased to better accommodate the growing costs of specialized and advanced training opportunities."* **FGD1, (2025)**

> *"Currently, our departmental budget has allocated 100 million Ugandan shillings, which is intended to train 100 trainers for the entire year."* **FGD2, (2025)**

> *"Financial support for CPD programs remains limited. The Ministry's budget allocation for CPD is minimal, only enough to facilitate one or two sessions per year. In the last financial year, CPD funding accounted for just 0.2% of the overall ministry budget, which is insufficient to meet the growing needs for continuous professional development."* **FGD3, (2025)**

Both the quantitative and qualitative findings agreed that institutional funding for CPD is generally inadequate and inconsistent, limiting trainers' access to development opportunities. While some institutions have recently secured dedicated budgets, these funds are often too small to cover comprehensive or advanced training needs, with many still relying heavily on donor support or self-funding. This funding gap poses a significant barrier to systematic CPD planning and calls for more sustainable financing models to ensure equitable and ongoing support for trainer development.

Institutional funding emerged as a core barrier to effective CPD, with the findings reflected a broader regional struggle for sustainable investment in professional development. Most institutions continue to rely on donor support or personal trainer contributions, leading to fragmented and inequitable access. This observation was echoed by Mende et al. (2023), who report that donor dependency in low-income countries often results in temporary competency improvements that fade once external funding ends. Similarly, Niyonasenze et al. (2024) observed how fragmented governance and limited national investment stifle the sustainability of CPD models in Rwanda. In Uganda, despite the National CPD Framework (2019), funding remains inconsistent and shallow in scope. This mismatch between policy and practice highlights the urgent need for dedicated, reliable CPD budgets that allow institutions to plan and implement continuous, context-specific professional growth activities that do not hinge on external actors.

4.4.4.3 Management support for CPDs

In terms of management support for CPD, 59.5% of respondents agreed, 14.9% strongly agreed, 9.5% were neutral and 16.2% disagreed. The mean score of 3.73 indicates that most trainers perceive active managerial backing for CPD, suggesting that leadership in many institutions is invested in staff development. The standard deviation of 0.911 shows high variability, pointing to inconsistent implementation of supportive practices across departments or institutions. This suggests that while the intent exists, the follow-through may be uneven. Strong leadership support is essential, as it signals the value placed on continuous learning and can encourage participation. The variability in responses may be due to differences in leadership styles or decentralization of decision-making.

The qualitative findings revealed that institutional management was generally committed to supporting CPD, often through direct actions such as funding training activities and granting time off for staff to attend them. This reflected a proactive approach to empowering trainers and cultivating a learning-centred institutional culture. However, sustainability and motivation remain areas needing further attention. Some of the key informants had this to say:

> *"Management actively supports CPD by funding training programs and allowing trainers time off to attend them. They consistently encourage participation whenever opportunities arise, fostering a culture of continuous learning. That said, introducing incentives like certificates of recognition could further boost motivation and engagement among trainers."* **FGD1, (2025)**

> *"As principal, I am fully committed because it's unproductive to have staff who lack certain skills. It doesn't help to keep hiring experts who train students but leave staff behind. We are working towards a self-sustaining system where staff are empowered without constantly relying on external experts."* **KI8, (2025)**

The data also suggested that while the MoES was making deliberate efforts to promote CPD through policy directives and budgetary guidance, the actual implementation was often hindered by limited resources. Encouragement exists in the form of budget votes and leadership capacity-building forums; however, the absence of a mandatory CPD policy and the modest size of the allocated budget have weakened enforcement and prioritization at institutional levels. Some of the key informants had this to say:

> *"The ministry has introduced a specific budget vote for CPD within institutional budgets."* **KI1, (2025)**

> *"The ministry convenes institutional managers and encourages them to develop leadership programs within their institutions. However, the budget is usually constrained. Still, the ministry has allocated a small portion of the budget to support such training efforts. There is a clear intention from the ministry to help institutional leadership prioritize and promote CPD, even if resources are limited."* **KI3, (2025)**

The review of the Ten-Year Strategic Plan for the Teacher/Tutor Instructor Education and Training (TIET) Department (2020–2030) revealed a comprehensive set of strategies aimed at strengthening Technical Vocational Education and Training (TVET) in Uganda. The plan outlines key initiatives such as establishing two additional Instructor Training Institutions to address the rising demand for skills in non-conventional trades and transforming the National Instructors' College Abilonino (NICA) into a centre of excellence for technical instructor training. It also prioritizes the development of standardized curricula for TVET institutions that integrate cross-cutting themes including ICT, 21st-century skills, and environmental sustainability. Further, the strategy emphasizes the modernization of training infrastructure, the enhancement of instructor qualifications through Continuous Professional Development (CPD), and the establishment of coordinating centres to provide effective mentorship and supervision across TVET institutions. Collectively, these measures are designed to improve the

quality, relevance, and accessibility of TVET, ensuring alignment with Uganda's national development goals and evolving labour market needs.

Both the quantitative and qualitative findings indicated strong management support for CPD, with many trainers perceiving leadership as committed to staff development despite some variability in implementation across institutions. The qualitative insights and strategic documents confirm this intent, highlighting proactive funding, time allowances, and policy frameworks aimed at strengthening CPD and TVET more broadly, though resource constraints and uneven enforcement remain challenges. Together, these results suggest that while leadership values CPD and has laid important groundwork, consistent follow-through and increased resources are needed to fully realize its potential across all institutions.

The study revealed that while institutional management demonstrates a general commitment to supporting Continuous Professional Development (CPD), this support remained inconsistent, largely influenced by individual leadership styles, institutional autonomy, and the availability of resources. Trainers acknowledged managerial efforts such as enabling workshop attendance and time-off for training but also highlighted the limitations imposed by the lack of mandatory CPD policies and weak enforcement mechanisms. This mirrors findings by Kahiga et al. (2024), who noted that insufficient leadership qualifications in Kenya constrain CPD innovation, whereas institutions led by well-trained administrators tend to align more closely with CPD priorities. Encouragingly, the Ministry of Education in Uganda has taken deliberate steps to promote CPD by introducing budget lines, convening leadership forums, and developing a Ten-Year Strategic Plan under the Teacher/Tutor Instructor Education and Training (TIET) Department (2020–2030). However, without making CPD a policy

requirement and linking it directly to performance reviews and institutional audits, leadership support may continue to vary in strength and sustainability.

4.4.4.4 Institutional cultural values for lifelong learning and professional growth

When it comes to institutional culture around lifelong learning and professional growth, 67.6% of respondents agreed, 10.8% strongly agreed, 10.8% disagreed, and another 10.8% were neutral. The mean of 3.78 indicates a positive orientation, suggesting that the majority of institutions promote a culture that values continuous development. The standard deviation of 0.781 is moderate, pointing to relatively consistent perceptions among trainers. This kind of culture plays a critical role in sustaining engagement with CPD, making it a shared institutional norm rather than an optional extra. These results may be the product of long-standing professional values, supportive peer environments, or leadership messaging.

The qualitative findings highlighted a generally positive institutional culture that values continuous learning and professional growth, although structural limitations and inconsistencies remain. Some institutions show commitment through policies, budgeting, and expectations for staff to pursue ongoing development. However, gaps still exist in formalizing career progression pathways and ensuring equitable support across departments. Some of the key informants had this to say:

> *"Yes, continuous learning is clearly valued at the institution, reflected both in policy and dedicated budgeting. There is an underlying expectation that staff actively pursue skill development to stay current. Still, establishing more formal career progression pathways tied to professional growth could strengthen this culture even further."* **FGD1, (2025)**

> *"The culture is supportive, though it can improve. When I joined, I found equipment that staff did not know how to use, like industrial tailoring machines that became obsolete. When we brought in an expert, they realized the technology was outdated, and he fabricated a more recent machine, now in use."* **KI8, (2025)**

The data also revealed evidence that CPD was being integrated into institutional strategies, particularly as part of broader reforms like the new TVET law, though the culture was still in transition. Respondents pointed to early signs of structured efforts to embed CPD in strategic priorities. However, the development of a deeply embedded learning culture was still underway, with future improvements anticipated through legal and policy frameworks. Some of the key informants had this to say:

> *"There is no strong culture of continuous learning in these institutions yet, although it is being encouraged. With the new TVET law coming in, this culture is likely to improve, especially since participation in CPD will soon be mandatory."* **KI3, (2025)**

> *"Institutions have now started integrating CPD into their strategic priorities. After conducting a mid-term evaluation of our project, one of the recommendations was to bridge the information gap and collaborate more closely with institutions. In response, we introduced the Theory of Change model where CPD is designed to be part of both pre-service and in-service training."* **KI4, (2025)**

The quantitative and qualitative findings aligned in showing a generally positive institutional culture that values lifelong learning and professional growth, with most trainers perceiving CPD as a shared priority. While many institutions demonstrate commitment through policies, budgeting, and emerging strategic integration, gaps remain in formal career pathways and consistent support, indicating the culture is still evolving. This suggests a strong foundation exists, but further efforts, supported by new laws and clearer frameworks, are needed to fully embed continuous learning as a core institutional norm.

The findings suggested that most institutions are fostering a positive culture around lifelong learning and professional growth, with trainers perceiving clear institutional support for continuous development. This reflected a shift towards integrating CPD into strategic planning and aligning it with broader reforms, such as Uganda's new TVET law. The sentiment aligned with Hasanah et al. (2025), who emphasize the role of

institutional culture and industry partnerships in sustaining professional learning. However, the study revealed that these cultural gains remain vulnerable to structural gaps, such as outdated training resources and limited career progression pathways. This transitional phase suggested that while the foundation for a CPD-driven culture was forming, sustained commitment and structural reinforcement are needed to institutionalize these values fully.

4.4.4.5 Updates instructional resource and technology

For access to instructional resources and technology, 52.7% of trainers agreed, 2.7% strongly agreed, 20.3% were neutral, and 24.3% disagreed. The mean score of 3.34 indicates that, on average, respondents perceive access to instructional resources and technology as moderately adequate. This suggests that while some trainers feel sufficiently equipped, the overall provision of resources does not fully meet institutional or professional expectations. The standard deviation of 0.880 reflects considerable variation in responses, showing that experiences with access to instructional tools differ across trainers and institutions. This variation implies that some trainers have access to up-to-date resources, while others face limitations that may constrain effective teaching and the practical application of CPD activities. The gap likely results from differences in procurement priorities, external support, or infrastructure maintenance across institutions.

The qualitative findings revealed that access to instructional materials and digital tools, while improving, remains uneven across departments and institutions. Though the MoES has taken steps to prioritize ICT integration such as deploying ICT labs and assigning ICT personnel, many trainers still face barriers like limited equipment, insufficient access to labs, and unstable internet connectivity. These disparities hinder

consistent CPD engagement and digital integration in teaching. Some of the key informants had this to say:

> *"We have adequate equipment but limited ICT resources. Currently, each department has one laptop, which limits planning and digital integration. Though we have a lab, staff cannot always access it."* **KI8, (2025)**
>
> *"There is growing availability, but the level of equipping varies across programs and individual trainers, with notable gaps in ICT tools."* **KI9, (2025)**
>
> *"The ministry has made efforts to equip institutions with ICT labs and has deployed ICT managers and trainers in these facilities. However, these resources are still underdeveloped, particularly in sustaining reliable internet connectivity. This lack of stable internet is a significant challenge for effective CPD implementation."* **KI3, (2025)**

The quantitative and qualitative findings agreed that access to instructional resources and technology is improving but remains uneven across institutions. While some trainers have adequate tools and ICT support, many still face challenges like limited equipment, restricted lab access, and unstable internet connectivity, which hinder effective CPD participation. This variation highlights the need for institutions to prioritize equitable resource distribution and strengthen infrastructure to ensure all trainers can fully benefit from digital and technical learning tools.

The findings demonstrated considerable inconsistency in access to instructional resources and digital tools, a challenge that undermines the quality and inclusiveness of CPD. whereas some institutions have benefited from ICT infrastructure upgrades, others still grapple with unreliable internet, limited access to laptops, and underutilized labs. This was in line with Niyonasenze et al. (2024), who documented similar ICT infrastructure gaps in Rwanda, restricting the implementation of blended CPD models. The Ugandan context was further complicated by regional disparities, with rural institutions disproportionately under-resourced, as noted by the Ministry of Education and Sports (2017). Bridging this digital divide was essential for equitable trainer

development, calling for targeted investment and coordination that prioritizes under-resourced institutions and ensures all trainers have the tools to engage fully in modern CPD activities.

4.4.4.6 Institutional policies

When asked whether institutional policies clearly define CPD expectations and requirements for trainers, 45.9% of respondents agreed and 6.8% strongly agreed, while 18.9% disagreed, 2.7% strongly disagreed, and 25.7% were neutral. The mean score of 3.35 indicates that, on average, respondents hold a neutral to slightly positive view regarding the clarity of CPD policies. This suggests that while policies may exist, they are not consistently communicated or fully understood across institutions. The standard deviation of 0.957 reflects considerable variability in responses, showing that trainers' perceptions of policy clarity differ widely. This variation implies that some trainers find policies clear and actionable, whereas others experience confusion or uncertainty, likely due to fragmented communication, limited policy dissemination, or gaps between formal documentation and actual practice.

The qualitative findings highlighted a widespread absence of clearly defined institutional or national policies specifically tailored to guide CPD expectations and implementation for TVET trainers. While some institutions refer to overarching MoES frameworks or the TVET Act 2025, there was a noticeable lack of internal, context-specific guidelines that speak directly to the unique needs of trainers in vocational settings. This policy vacuum contributed to inconsistent practices, uncertainty, and a fragmented approach to CPD across institutions. Some of the key informants had this to say:

> *"We do not have an internal policy yet. But the new TVET act outlines that CPD must be conducted and verified for practicing trainers, and this will hopefully provide clearer guidance and sustainability."* **KI9, (2025)**

> *"There are no specific guidelines for CPD implementation. The ministry has a general CPD framework for teachers, but trainers need a specialized framework due to their unique role. Although the TVET Act makes CPD compulsory, there is no clear guidance on implementation. We need to develop a specific policy and framework for CPD."* **FGD2, (2025)**

> *"No, there are currently no specific policies or guidelines tailored for TVET trainers on CPD implementation. Although there is a national digital framework in place, it has not yet been fully operationalized within the institutions. This policy gap makes it difficult to standardize CPD practices across the board."* **FGD3, (2025)**

Both the quantitative and qualitative findings pointed to unclear and inconsistent CPD policies within institutions, especially for TVET trainers. While some trainers perceive the existence of policies, many note gaps in communication, specificity, and practical guidance, leading to varied understanding and implementation. This underscores the urgent need for clear, tailored CPD policies and better dissemination to ensure consistent expectations and sustainable professional development across institutions.

The findings revealed ambiguity and inconsistency in CPD policy awareness and implementation at the institutional level. While some trainers are aware of general policies or ministry guidelines, many report a lack of specific, actionable CPD frameworks within their institutions. This lack of clarity reflected a broader trend observed by Chuprynko (2020), who found that over-centralized governance structures limit institutional autonomy to contextualize and innovate around CPD. Without localized policies that are well-communicated and aligned with trainers' needs, CPD risks becoming a peripheral activity rather than a strategic priority. This highlights the need for institutions to develop and disseminate clear CPD policies that link professional development to institutional goals and performance expectations.

4.4.4.7 Monitor trainer's participation in CPDs

On whether mechanisms are in place to monitor trainers' participation in CPD, 50% of respondents agreed, while 2.7% strongly agreed. However, a significant number, 32.4% disagreed, 5.4% strongly disagreed, and 9.4% were neutral. The mean score of 3.12 indicates that, on average, respondents hold a neutral perception regarding the existence of monitoring systems for CPD participation. This suggests that while some trainers experience structured monitoring, many perceive it as limited or inconsistent. The high standard deviation of 1.072 reflects substantial variability in responses, showing that experiences with CPD monitoring differ widely across institutions. This variation implies that some trainers benefit from active oversight, whereas others operate without formal tracking, likely due to differences in institutional policies or administrative capacity. Weak monitoring may reduce accountability and diminish motivation to engage in CPD.

The qualitative findings revealed that institutions have informal, localized mechanisms such as attendance registers and evaluation of training outputs that serve to track participation at the session level. These efforts, while practical, lack consistency and standardization across the broader TVET system. Some of the key informants had this to say:

> *"We track participation through daily attendance during CPD sessions. We also evaluate the final products created after the training."* **KI8, (2025)**
>
> *"We monitor attendance through participation lists maintained during CPD sessions."* **KI9, (2025)**

The qualitative data also highlighted systemic challenges that limit CPD monitoring and accountability at institutional and ministry levels. The lack of mandatory CPD participation, absence of national guidelines, and limited monitoring tools create an

environment where compliance depended heavily on individual institutions' discretion. Reporting on CPD activities occurs, but enforcement and data collection remain weak, limiting the ability to identify gaps and improve programme effectiveness. Some of the key informants had this to say:

> *"There is no standardized, national system for monitoring CPD participation and outcomes. The monitoring we do is not sufficient. Even our current monitoring tools used during support supervision do not capture data on CPD participation or outcomes."* **KI2, (2025)**
>
> *"There are no formal structures in place for CPD monitoring because, legally, it is not yet mandatory for everyone to participate in CPD."* **KI3, (2025)**
>
> *"Ensuring compliance is a challenge because there is no enforceable law or set of guidelines dedicated to CPD delivery. For now, compliance is largely dependent on the discretion of individual institutions. While institutions do share reports when CPD activities are conducted, there is no robust mechanism to monitor or enforce consistent participation."* **FGD3, (2025)**

The quantitative and qualitative findings both showed that monitoring of trainers' CPD participation is inconsistent and largely informal, with many institutions relying on basic attendance tracking but lacking standardized systems. This gap reflects broader systemic challenges, including the absence of mandatory CPD policies and national monitoring frameworks, which weakens accountability and reduces motivation for consistent engagement. To improve, institutions and the ministry must establish clear, enforceable monitoring mechanisms that capture participation and outcomes, ensuring more reliable data to guide CPD effectiveness.

The findings suggested a mixed and somewhat fragmented picture when it comes to monitoring trainers' participation in CPD. Monitoring and accountability for CPD participation are inconsistent across institutions, with many relying on informal systems like attendance registers or anecdotal follow-up. This mirrors findings from Mende et al. (2023), who emphasize the lack of coordinated CPD monitoring mechanisms in low-

income countries, resulting in weak accountability and limited data for decision-making. In the absence of national standards or tools for tracking trainer engagement and progress, institutions struggle to assess the impact of CPD or tailor programmes effectively. The findings suggested a pressing need for structured, transparent monitoring frameworks that support ongoing evaluation, promote accountability, and enable data-driven improvements in CPD delivery.

4.4.4.8 Collaboration between institution and industry

Regarding collaboration between institutions and industry partners to support CPD, 33.8% of respondents agreed, 8.1% strongly agreed, while 24.3% disagreed, 8.1% strongly disagreed, and 25.7% were neutral. The mean score of 3.09 indicates that, on average, respondents hold a neutral view regarding institutional collaboration with industry for CPD. This suggests that such partnerships are either weak, inconsistent, or not fully leveraged to support professional development. The high standard deviation of 1.112 reflects considerable variation in responses, showing that some trainers experience strong industry engagement while others report little to no collaboration. This variability implies that access to industry-supported CPD is uneven, which can limit the relevance of training, particularly in technical fields that require up-to-date practical knowledge. The inconsistency likely stems from the absence of formal partnerships or irregular communication with employers.

The qualitative findings revealed that there was some level of collaboration where industry players contribute to CPD design and delivery, especially through consultative platforms and direct involvement in training activities. These engagements aim to ensure alignment between CPD content and real-world demands, though informants

noted that deeper and more consistent collaboration was still needed. Some of the key informants had this to say:

> *"Our collaboration with industry and development partners mainly involves their active participation in facilitating trainings. Some lecturers pursuing further studies undertake projects that engage with the world of work. We also apply methodologies that integrate industry practices, and some project-based learning directly involves industry, keeping us connected and aligned with real-world demands."* **KI8, (2025)**

> *"Industry experts and practitioners are involved in the design, development, and delivery of CPD through participation in consultative meetings and panels. Their insights help ensure that the content is aligned with real-world industry expectations and practices. However, the extent of their involvement can still be enhanced for greater impact."* **FGD3, (2025)**

The data further revealed that development partners and government-affiliated organizations play a critical role in providing technical assistance, funding, and strategic guidance to strengthen CPD initiatives. These partnerships have enabled the creation of specialized modules, institution-industry linkages, and sector-relevant curriculum development, as noted by some of the key informants:

> *"We provide various forms of support. Technically, we organize training sessions. On the advisory side, we hold steering committee meetings chaired by the Permanent Secretary of the Ministry of Education and Sports, where we discuss and agree on the way forward. We have also developed CPD modules in technical areas like mushroom production, piggery, and other agricultural practices."* **KI4, (2025)**

> *"We have provided a range of financial, technical, and advisory support to strengthen TVET institutions' CPD implementation capacity. For example, we facilitated linkages between colleges like Mbale Community Polytechnic and regional Agro-processing firms to foster relevant CPD collaborations. We partnered with Makerere University School of Computing and private ICT firms like DHL Uganda to develop CPD courses on cloud computing, cybersecurity, and software development methodologies. The 2023 programme emphasized practical labs and industry-driven case studies to align trainers' skills with digital transformation."* **KI5, (2025)**

However, although partnerships between training institutions and industry exist, the integration of CPD within these collaborations remains weak or optional. Many

institutions have signed MoUs with private sector actors, yet these partnerships often lack a structured CPD component or fail to mandate industry-based professional development for instructors. Some of the key informants had this to say:

> *"Most institutions have Memoranda of Understanding (MoUs) with various private sector organizations. However, the CPD component within these partnerships has not been very strong."* **KI2, (2025)**

> *"While partnerships with private sector institutions exist, participation in CPD through these links remains optional. Some institutions do provide attachments or placements for instructors within industry settings, but it is not mandatory for every instructor to undergo CPD in the industry."* **KI3, (2025)**

The document review revealed that NICA has signed several Memoranda of Understanding (MoUs) with a range of industrial stakeholders, including Kaberamaido Technical Institute, Global Agro Enterprise Limited, Homa Farms Limited (Gulu), Bulindizardi (Hoima), Kiima Foods, Adraa Agriculture College, 4 Diz Group Co. Ltd, Rwentanga Farm School, Vertical and Micro Gardening (VMG), and Bunyangabu Beekeepers Cooperative Society, among others. Similarly, Jinja VTI has established MoUs with industries such as Kakira Sugar, Uganda Electricity Generation Company Ltd, Mayuge Sugar Works, Kaliro Sugars Ltd, and Tembo Steels Iganga.

The quantitative and qualitative findings both suggested that collaboration between institutions and industry partners to support CPD was uneven and generally weak, with some respondents reporting active engagement while others experience little to no partnership. Although many institutions have formal agreements with industry players, these partnerships often lack a strong or mandatory CPD component, limiting their impact on trainer development. Development partners and government agencies do provide important technical and financial support, helping to create relevant CPD modules and foster linkages, but integration remains inconsistent across institutions.

The relationship between training institutions and industry in support of CPD was promising but underdeveloped, with existing partnerships often limited in scope and depth. The study identifies positive cases of collaboration through MoUs and development partner support, yet most trainers report that industry engagement remains optional and sporadic. This aligned with Hasanah et al. (2025), who underscore the importance of institutional partnerships in sustaining meaningful CPD. However, the absence of standardized engagement models results in uneven trainer exposure to industry-relevant practices. Institutionalizing CPD within formal partnership agreements and aligning training with labour market needs would help bridge this gap, ensuring that professional development remains practical, current, and rooted in real-world demands.

4.4.4.9 Institutional leadership

A combined 77.1% of respondents (56.8% agreed and 20.3% strongly agreed) felt that institutional leadership regularly communicates the importance of CPD, while 12.2% were neutral and 10.8% disagreed. The mean score of 3.86 indicates that, on average, respondents perceive strong leadership support for CPD. This suggests that communication from institutional leaders is generally effective in emphasizing the value of professional development. The standard deviation of 0.865 reflects moderate variability in responses, showing that while most trainers experience consistent leadership messaging, some perceive it as less visible or less frequent. This variation implies that differences in departmental emphasis or individual leadership priorities may affect how CPD support is communicated, influencing trainers' engagement and perception of institutional commitment to professional development.

The qualitative findings revealed that while there are some efforts by institutional leadership to communicate the importance of CPD, these efforts are neither systematic nor consistently implemented across institutions. A few key informants acknowledged that external support, such as trainings organized by the MoES, has helped in reinforcing CPD messaging. However, others pointed out that there are no clear internal strategies in place to ensure sustained and visible leadership communication around CPD. This inconsistency in approach may contribute to varied perceptions and levels of engagement with CPD among staff and stakeholders. Some of the key informants had this to say:

> *"We have had several trainings facilitated by Ministry officials about the importance of CPD. This has helped emphasize its value to both staff and stakeholders."***KI8, (2025)**

> *"There are no well-defined strategies to ensure that institutional leadership consistently communicates the importance of CPD." KI***2, (2025)**

Both the quantitative and qualitative findings agreed that institutional leadership generally supports CPD through communication, with most trainers recognizing its importance. However, the qualitative data highlights inconsistencies and a lack of systematic, sustained messaging across institutions, which helps explain the moderate variation seen in survey responses. This suggests that while leadership backing exists, more deliberate and consistent strategies are needed to embed CPD as a clear, ongoing priority throughout all departments.

The findings suggested that while institutional leaders often communicate the importance of CPD, the communication was irregular and lacked integration into broader institutional systems. Trainers note that much of the information comes through ad hoc channels, often linked to ministry-driven initiatives rather than proactive internal strategies. This reflected the systemic communication gaps observed by Makole et al.

(2023), who noted that top-down approaches and fragmented cultures in South African TVET institutions weakened institutional cohesion and strategic planning. Addressing these gaps requires intentional, consistent internal communication strategies that frame CPD as an essential component of professional development and institutional performance, embedded in routine dialogue, planning, and review processes.

Table 0.13: Mediation Analysis of the effect of CPD Strategies on Trainers' Competences Through the Status of TVET Institutions

Path	Coefficient (B)	SE	t / Z	p-value	95% CI (LLCI, ULCI)
IV (CPD Strategies) → Mediator (Status of TVET Institutions)	0.9012	0.0647	13.93	< .001	0.7722, 1.0301
IV (CPD Strategies) → DV (Trainers' Competences) (Direct)	0.1062	0.1284	0.83	0.411	-0.1498, 0.3622
Mediator (Status of TVET Institutions) → DV (Trainers' Competences)	0.2957	0.1217	2.43	0.018	0.0531, 0.5384
Indirect Effect (via Mediator)	0.2665	0.1316	-	-	-0.0265, 0.4857

Source: *Primary Data (2025)*

The results in Table 4.13 revealed a clear and significant relationship between CPD strategies and the status of TVET institutions. Specifically, CPD strategies have a strong positive effect on institutional status (B = 0.9012, $p < .001$), highlighted that well-designed and consistently implemented CPD programmes can build institutional strength, capacity, and readiness. This suggests that when institutions invest in structured CPD systems, they are better positioned to provide the support, infrastructure, and organizational culture necessary to foster professional growth among trainers.

However, the analysis also showed that CPD strategies, on their own, do not significantly impact trainers' competences directly (B = 0.1062, $p = 0.411$). Instead, the influence appeared to operate more meaningfully through the institution itself. The status of the institution significantly predicts trainer competence (B = 0.2957, $p = 0.018$),

implied that well-managed, adequately resourced, and professionally supportive environments are what ultimately enable trainers to apply and internalize the benefits of CPD. The indirect effect (0.2665) pointed to partial mediation, but its confidence interval (-0.0265 to 0.4857) includes zero, suggested the mediation is not statistically robust.

There are likely other important but unmeasured variables shaping this relationship. For instance, a trainer's own motivation and attitude toward professional growth can significantly influence whether CPD content is internalized or disregarded. Likewise, without a clear national policy or regulatory framework to standardize CPD practices, the outcomes can vary widely across institutions. The quality of the facilitators delivering CPDs, availability of funding, relevance of the training content to current industry demands, and frequency of CPD sessions all matter deeply. These factors may interact in complex ways to either enable or block the translation of CPD initiatives into improved competence. Therefore, while institutional strengthening is critical, future interventions must take a more holistic approach, one that aligns systemic support with individual drive, regulatory clarity, and resource readiness.

CHAPTER FIVE

SUMMARYOF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study's key findings, draws conclusions, and offers recommendations based on the results discussed in Chapter four. The chapter aims to provide a comprehensive overview of the research while highlighting the implications of the findings in relation to the study objectives. It begins by summarizing the main results, organized according to the research objectives. The chapter then draws conclusions that synthesize both the quantitative and qualitative insights, establishing a clear link between evidence and interpretation. Finally, practical and policy-oriented recommendations are offered to guide stakeholders in addressing the identified gaps and strengthening future interventions. Implications for theory and areas for further research are also suggested to support continuous inquiry and improvement.

5.2 Summary of the Study Findings

This section provides a summary of the key findings of the study, organized according to the research objectives.

Objective 1: Assess the current CPD practices available for TVET trainers in instructor training institutions in Uganda.

The findings revealed that, while CPD programmes for TVET trainers in Uganda are taking place with some regularity, their implementation remains fragmented and uneven. Institutional commitment exists; however, access often depends on individual initiative, donor funding, or sector-specific priorities, leaving many trainers without consistent or equitable opportunities for career growth and development. The absence

of a national policy framework further exacerbates disparities, with some institutions able to organise structured sessions while others rely on ad hoc efforts. Despite signs of growing investment and collaboration at ministerial and departmental levels, CPD remains inconsistently executed, suggesting that it requires a coordinated, system-wide approach to ensure sustainable, inclusive, and strategically aligned professional growth for all TVET trainers.

CPD programmes generally resonate well with trainers' technical specializations, reflecting a deliberate effort to address specific skills gaps through needs assessments and industry collaboration. This targeted approach enhances the practical value of training and supports ongoing curriculum and technological updates. However, the alignment is not uniform with variations arising due to funding limitations, the self-directed nature of some CPD participation, and occasional divergence from core fields driven by career diversification motives. These dynamics highlight both the strengths of demand-driven, contextually relevant CPD and the challenges of ensuring consistent customization across diverse disciplines, underscoring the importance of sustained industry engagement and resource allocation to maintain the relevance and effectiveness of professional development.

The findings revealed a complex and uneven landscape regarding CPD accessibility for trainers across locations. While institutional structures and ministry-led coordination offer pathways to inclusive professional development, significant barriers persist, particularly for those in remote areas or underfunded departments. Constraints such as limited funding, sector-specific donor priorities, and logistic challenges disproportionately affect trainers outside centrally supported programs, highlighting a gap between policy intent and practical reach. This underscores the urgent need for more flexible, resource-sensitive delivery models that can genuinely extend CPD

opportunities beyond well-resourced hubs to ensure equitable professional growth across the entire trainer workforce.

The findings pointed out that the communication system for CPD opportunities is fragmented and informal, leading to inconsistent awareness among trainers. Whereas some trainers receive timely updates through peer networks and occasional official channels, many experience delays or gaps that hinder effective planning and participation. This patchwork approach reveals a lack of institutionalized communication protocols, which undermines the uniform dissemination of crucial information. This situation calls for deliberate efforts to establish clear, standardized, and proactive communication strategies that can ensure all trainers are equally well-informed well in advance, thereby enhancing engagement and the overall effectiveness of CPD programmes.

The data revealed that although CPD programmes generally strive to integrate both theoretical and practical elements, this integration varies considerably in practice. Effective trainings combine both theoretical and practical, particularly when industry experts are involved, yet others remain theoretical, especially those not directly tied to trade specifics. This inconsistency points to a broader issue of lacking standardized curricula that mandate practical components, as well as resource limitations in some institutions. Ultimately, the uneven inclusion of practical learning undermines the potential for trainers to fully develop the competencies essential for effective technical instruction, highlighting the need for policy and institutional reforms to enforce a more consistent and applied approach across all CPD programmes.

The findings suggested that CPD sessions are largely led by TVET master trainers who possess both pedagogical and practical experiences, often drawn from relevant

industries, which helps keep the training closely aligned with current professional standards. This approach strengthens the perceived quality and relevance of CPD delivery. However, the absence of a formal, standardized national framework for selecting or training these facilitators leads to variability in their competence across institutions. This inconsistency points to a gap in ensuring uniform quality and highlights the need for clear, centralized guidelines to maintain high standards in facilitator recruitment and preparation, thereby supporting more consistent and effective CPD outcomes.

The findings revealed that whereas there are notable efforts to keep CPD content aligned with evolving industry trends through collaborations and needs assessments, these processes lack consistency and formalization across institutions. Partnerships with industry and the Ministry of Education provide valuable input, yet the absence of standardized, sustained mechanisms to systematically integrate feedback leads to uneven updates. Additionally, resource constraints, particularly outdated equipment, limit the practical application of new technologies within training. This gap between intention and implementation underscores the need for more robust institutional frameworks and deeper, structured engagement with industry to ensure CPD content remains relevant, current, and responsive to the dynamic demands of technical fields.

The findings indicated that while there was a generally positive attitude within institutions toward sharing knowledge gained from CPD, this encouragement often lacks formal support and consistent follow-through. Trainers are expected to disseminate what they learn, but without clear guidelines, accountability, or structured platforms, this process remains sporadic and largely dependent on individual initiative. Heavy workloads and institutional inertia further hinder the effective translation of CPD insights into broader staff development. This gap between expectation and practice

suggests that fostering a truly collaborative learning culture requires more than goodwill; it demands deliberate institutional mechanisms to facilitate, monitor, and sustain knowledge-sharing activities beyond the initial training events.

The findings revealed a fragmented approach to recognizing and rewarding CPD participation, with no consistent or formalized mechanisms linking CPD engagement to career advancement or tangible incentives. Whereas certificates are sometimes issued, they often lack direct ties to promotions, salary adjustments, or structured rewards, leading to mixed perceptions among trainers about the value placed on their professional development efforts. This absence of clear incentives may undermine motivation to participate fully in CPD activities, despite informal benefits such as enhanced professional profiles. The gap underscores the need for institutions to develop explicit policies and reward systems that formally acknowledge CPD achievements, thereby strengthening the role of continuous learning in career progression and institutional effectiveness.

The study establishes that current CPD practices within instructor training institutions contribute meaningfully to enhancing the professional competences of TVET master trainers in Uganda. The findings affirm that when CPD was intentionally designed and implemented, it positively influences trainers' capabilities, reinforcing its role as a strategic lever for improving teaching quality in the TVET sector. However, the influence of CPD is part of a broader ecosystem, suggesting that its effectiveness is amplified when complemented by supportive institutional conditions, motivated trainers, adequate resources, and alignment with industry needs. This underscores the importance of embedding CPD within a comprehensive framework that addresses both individual development and systemic enablers of professional growth.

Objective 2: Examine the strategies used in identifying the training needs of TVET trainers in the Instructor Training Institution in Uganda.

The findings indicated that while institutions have established mechanisms, such as performance appraisals, training needs assessments, and support supervision to identify trainers' professional development needs, the effectiveness of these tools varies in practice. Although these processes offer a structured approach to understanding skill gaps, their implementation is often hampered by limited resources, inconsistent follow-through, and a tendency toward generic rather than individualized CPD interventions. As a result, the potential of these assessments to inform targeted, meaningful professional development remains underutilized, suggesting a gap between intention and execution in CPD planning.

The findings revealed that whereas the value of student feedback in identifying trainers' professional development needs was acknowledged, its integration into CPD planning remains largely informal, inconsistent, and underdeveloped. Institutions tend to rely more on performance appraisals, donor-driven agendas, and administrative routines, with student perspectives often bypassed or only considered indirectly. Although some efforts to gather and use student input exist, particularly through informal channels, these lack the structure and depth necessary for meaningful impact. Overall, the study highlights a gap between the perceived importance of student feedback and the institutional mechanisms required to translate that feedback into actionable CPD strategies.

The findings indicated a growing, yet uneven, shift toward industry-informed CPD practices within TVET institutions. While there is clear acknowledgment of the need to align trainer development with labour market demands, collaboration with industry stakeholders remains inconsistent and often dependent on isolated initiatives or donor-driven projects. Institutions are beginning to adopt structured mechanisms such as Training Needs Assessments, tracer studies, and employer feedback to inform CPD content, signalling progress toward more responsive and evidence-based programming. However, the absence of standardized, institutionalized frameworks for sustained engagement underscores a need for more deliberate and embedded collaboration strategies to ensure CPD remains relevant, adaptive, and effectively aligned with evolving industry requirements.

The key findings indicated that while trainers are, in some cases, engaged in identifying their professional development needs; particularly through mechanisms like performance appraisals and participatory needs assessments, this involvement remains inconsistent and often constrained by institutional and donor-driven agendas. Some trainers experience meaningful participation in shaping their learning paths, yet others face limited agency due to top-down planning and externally set priorities. Overall, the process lacks uniformity, with variations influenced by organizational culture, funding structures, and the absence of formalized, trainer-centred CPD planning frameworks. This underscores a need for more systematic, inclusive approaches that genuinely incorporate trainer input into CPD design and implementation.

The findings revealed that regular and structured skills assessments for TVET trainers are largely absent or inconsistently applied across institutions. While some form of evaluation exists, primarily through annual performance appraisals, these tend to be broad and subjective, lacking clear frameworks or tools to assess specific competencies.

There is little evidence of systematic skills audits, and where assessment practices do occur, they are often informal and not linked to broader institutional strategies for professional development. This pointed to a deeper structural gap in how institutions identify and respond to evolving trainer needs, ultimately weakening the foundation upon which effective, data-driven CPD planning should rest.

The findings demonstrated that while the value of customizing CPD to individual trainer needs was increasingly acknowledged, actual implementation remains uneven and constrained by institutional norms, limited resources, and lack of formal planning frameworks. CPD is still predominantly designed at departmental or institutional levels, with only sporadic efforts to personalize it through performance appraisals or trainer input. Even when individual needs are identified, translation into targeted development initiatives is often hindered by budgetary and structural barriers. This disconnect between intent and practice highlights a persistent gap in aligning CPD delivery with the specific professional growth needs of trainers.

The findings revealed a growing institutional recognition of the need to align CPD with technological advancements and industry shifts, marked by initial steps toward greater collaboration with industry stakeholders and incorporation of digital tools in training delivery. While policy reforms have created frameworks for more inclusive decision-making, implementation remains inconsistent, with varying levels of responsiveness across institutions. The integration of ICT and market-relevant content in some CPD modules reflects progress, yet gaps persist in systematically identifying emerging skills and ensuring all trainers benefit equitably. Overall, the data points to a CPD landscape in transition characterized by promising reforms and initiatives, but still requiring stronger structures, sustained industry engagement, and adaptive capacity to fully respond to dynamic labour market needs.

The findings underscored a critical disconnect between existing institutional structures for requesting CPD and the actual awareness and utilization of these systems by trainers. While formal mechanisms are in place, they are inconsistently applied or poorly communicated, resulting in varied experiences across institutions. The core issue lies not in the absence of processes but in weak internal communication and limited sensitization efforts, which hinder trainers from actively engaging with available CPD pathways. This gap between policy and practice highlights the need for deliberate strategies to strengthen information flow and encourage trainer participation in shaping their professional development.

The key findings highlighted a fragmented and largely informal approach to monitoring and evaluating training needs identification within institutions. While mechanisms such as support supervision and routine monitoring are in place, they often emphasize activity tracking over outcome evaluation. The absence of structured frameworks, clear evaluation tools, and systematic feedback integration reflects a broader institutional gap in aligning CPD planning with actual training needs. This limits the ability of institutions to assess the relevance and impact of their CPD initiatives, thereby undermining efforts toward evidence-based decision-making and continuous improvement in professional development strategies.

The findings underscore the critical role that effective training needs identification strategies play in enhancing the professional competences of TVET trainers in Uganda. By systematically pinpointing skill gaps, institutions can more precisely target development efforts, which in turn contributes significantly to improving trainer effectiveness. Yet, while this factor is important, it does not operate in isolation; the results point to a broader landscape where multiple elements, including the quality of CPD programs and institutional support interact to shape overall competence. This

highlights the complexity of professional development and the need for integrated approaches that go beyond needs assessment alone to foster meaningful and sustained trainer growth.

Objective 3: Determine adoptable innovative CPD strategies that can improve the competences of TVET master trainers in the Instructor Training Institution in Uganda.

The findings revealed a sector cautiously embracing digital learning within CPD but struggling to move beyond pilot initiatives and isolated efforts into consistent, widespread practice. While there is recognition of the flexibility and reach that online tools can offer, persistent challenges, including limited infrastructure, uneven digital skills among trainers, and waning post-pandemic enthusiasm undermine broader adoption. Institutional commitment appears tentative, marked by emerging structures like ICT departments and strategic intentions in national plans, yet hampered by gaps in policy guidance, resource tracking, and user awareness. This creates a fragmented digital CPD landscape where potential remains largely untapped, highlighting the need for more coordinated, well-supported efforts that address both technical and motivational barriers to truly integrate digital learning into trainer development.

Mentorship emerges as a valued yet unevenly implemented element within CPD strategies, widely appreciated for its role in fostering professional growth and peer learning but often constrained by its informal and ad hoc nature. While institutions recognize mentorship’s potential to guide less experienced trainers through hands-on support and coaching, the absence of a coherent national framework leads to fragmented practices that rely heavily on individual or departmental initiative. This inconsistency results in variable access and quality, underscoring a gap between the acknowledged

benefits of mentorship and its systematic integration. The findings suggest a pressing need for deliberate institutionalization of mentorship programs, complete with standardized guidelines and accountability measures, to ensure that its developmental advantages are consistently realized across the TVET sector.

Peer learning and collaborative workshops are clearly valued as practical and impactful strategies within CPD, fostering knowledge exchange and improving teaching practices through shared experiences. These approaches thrive particularly because they are accessible and less resource-intensive, making them a natural fit for many institutions. Yet, despite their popularity at the institutional level, there is a notable absence of structured collaboration across institutions, with most joint efforts remaining informal or reliant on external donor support rather than being embedded within a national policy framework. This disconnect limits the scalability and broader impact of peer learning, pointing to a need for more deliberate coordination and formalization to move beyond isolated successes and build a cohesive community of practice throughout the TVET sector.

Practical, hands-on learning is widely acknowledged as a vital component of CPD, effectively bridging the gap between theory and real-world application. Trainers benefit from workplace-based approaches like shadowing, mentoring, and direct engagement with industry practitioners, which enhance skill relevance and applicability. However, disparities in access to industry-standard equipment and training environments reveal uneven implementation across institutions. The national Public-Private Partnership framework plays a crucial role in promoting collaboration between training institutions and industry, underscoring the importance of these linkages in maintaining CPD's practical focus. Overall, these findings highlight that reinforcing partnerships and

resource provision is essential to ensure consistent and meaningful hands-on learning experiences within CPD programs.

Mobile learning platforms remained underutilized and inconsistently adopted component of CPD, with most institutions relying on informal communication tools rather than structured mobile systems. The absence of dedicated national initiatives or clear institutional strategies for mobile learning limits its potential to expand access, particularly for trainers in remote areas or those constrained by time. While there is recognition of mobile learning's advantages, practical barriers such as digital literacy, connectivity, and lack of investment continue to impede broader integration. These findings point to a critical need for deliberate policy support, infrastructure development, and the creation of mobile-friendly CPD content to fully harness mobile learning's capacity to enhance professional development.

The findings highlighted a growing recognition within CPD programmes of the need to balance technical and soft skills development, reflecting a more holistic approach to trainer preparation. While technical skills continue to dominate due to their immediate relevance and measurability, soft skills such as communication, adaptability, and digital literacy are increasingly acknowledged as vital for effective teaching and workplace integration. Yet, the integration of soft skills remains inconsistent and often secondary, constrained by limited institutional focus and project-based implementation. This imbalance risks leaving trainers less equipped to navigate the complex interpersonal and contextual demands of modern vocational education, underscoring the need for more intentional, system-wide embedding of soft skills into CPD curricula alongside technical training.

The findings revealed that while CPD programmes generally strive to accommodate trainers' work schedules by scheduling sessions during term breaks, this approach does not fully address the diverse and sometimes conflicting demands trainers face, including personal and professional commitments outside teaching. The reliance on holiday periods, though well-intentioned, limits flexibility for trainers who remain engaged in other responsibilities, suggesting that current scheduling practices, though supportive, may not be sufficiently inclusive. This points to the need for more adaptable CPD delivery models such as modular, on-demand, or shorter sessions; that allow trainers greater control over when and how they participate, thereby enhancing accessibility without compromising their workload or well-being.

The findings illustrate that support for trainers to engage in external professional development opportunities such as conferences and seminars existed but remains uneven and largely informal. While some trainers gain access through individual initiative or donor-funded programs, institutional and ministry-backed support lacks consistency and formal structure. This fragmented approach results in unequal opportunities, with many trainers missing out on valuable exposure to emerging trends and best practices. The absence of dedicated budgets and clear policies to systematically facilitate external CPD participation underscores the need for stronger organizational commitment and strategic resource allocation. Addressing these gaps would foster a more equitable and sustainable framework, ensuring wider access to professional networks and enriching the overall quality of trainer development.

The findings underscored a strong consensus on the value of integrating real-world, industry-linked projects into CPD activities to enhance practical learning and problem-solving skills among TVET trainers. This approach aligns closely with the hands-on nature of technical education and is actively supported by partnerships with

development agencies and industry players. However, despite widespread recognition and positive implementation efforts, the consistency and accessibility of such practical experiences vary across institutions, often constrained by resource limitations and infrastructure challenges. Addressing these disparities through increased collaboration, shared resources, and strengthened industry linkages emerges as critical for ensuring that all trainers can fully engage with meaningful, contextually relevant CPD experiences that bridge theory and practice.

The analysis revealed a strong relationship between the adoption of innovative CPD strategies and the professional competences of TVET trainers. Approaches such as digital learning, mentorship, and industry collaboration play a key role in enhancing skills and professional growth.

While these strategies contribute meaningfully to competency improvement, the findings also show that trainer development is shaped by many factors beyond innovation alone. Efforts to strengthen trainer competence should not focus only on adopting new methods. They should also emphasize institutional support, trainer motivation, and the quality of CPD content. These elements together form a more comprehensive and effective professional development environment.

The data further suggest that innovation in CPD must go hand in hand with sustainable implementation and continuous evaluation. Without integrating these supporting factors, even the most promising strategies may not achieve their full potential in transforming trainer capabilities and improving educational outcomes.

5.3 Conclusions

Considering the study findings, several conclusions were made as follows:

Objective 1: Assess the current CPD practices available for TVET trainers in instructor training institutions in Uganda

CPD implementation for TVET trainers in Uganda is marked by inconsistency and fragmentation. Although programs are regularly organized, their delivery often depends on donor initiatives or individual efforts, which creates uneven access and varied quality across institutions. This patchy landscape underscores the urgent need for a cohesive national policy framework that can harmonize CPD activities, promote fairness in participation, and better align with broader institutional and national skills development objectives.

Moreover, the current CPD landscape is heavily skewed toward agriculture, largely due to donor funding preferences. This sector-specific focus leaves other technical fields under-resourced and limits the inclusivity of professional development opportunities. To address this imbalance, a more comprehensive approach is necessary; one that involves diversified funding sources and careful needs assessments to ensure all vocational disciplines receive adequate support and attention.

Accessibility remains a significant barrier, particularly for trainers in remote or underserved areas. Challenges such as logistical hurdles, centralized training venues, and limited financial resources disproportionately affect these regions, restricting equitable participation. Embracing blended learning models and decentralizing training delivery could offer practical solutions to expand reach and inclusivity.

Communication around CPD opportunities is currently inefficient and fragmented. The reliance on informal methods like WhatsApp, while helpful in some contexts, fails to guarantee timely and equitable dissemination of information. Institutions must invest in structured and reliable communication channels, such as dedicated digital platforms, to enhance transparency and enable better planning for both trainers and management.

Regarding CPD content, there is a general effort to balance theoretical knowledge with practical application, but this is unevenly realized. Resource limitations and the absence of a standardized curriculum contribute to variability, reducing the overall effectiveness of training. Introducing mandatory practical modules and reinforcing partnerships with industry would improve the relevance and applicability of CPD programs.

Facilitators involved in CPD are often well-qualified and drawn from industry, which adds value and relevance to training sessions. However, the process for selecting these facilitators lacks standardization, resulting in inconsistent quality across programs. Developing clear criteria for facilitator qualifications and experience is critical to ensuring uniform training excellence.

The updating of CPD content is irregular, despite efforts to collaborate with industry stakeholders. Weak institutional linkages and outdated resources hinder timely revisions, risking disconnect between training and current industry trends. Regular content reviews, sustained engagement with industry, and investment in modern teaching tools are vital to maintaining the currency and usefulness of CPD offerings.

Sharing of knowledge gained through CPD remains largely informal and is not yet institutionally embedded. The absence of formal mechanisms, such as peer-learning frameworks or accountability structures, limits the effective spread of insights and best

practices. Creating structured platforms for knowledge exchange and providing incentives would help build a stronger culture of professional collaboration.

Recognition for CPD participation was weak and inconsistent, which undermines motivation among trainers. Without formal reward systems such as certificates linked to career advancement or salary increases engagement in professional development can wane. Institutionalizing recognition mechanisms would not only incentivize participation but also align CPD more closely with trainers' career trajectories and aspirations.

Objective 2: Examine the strategies used in identifying the training needs of TVET trainers in the Instructor Training Institution in Uganda

Performance appraisals and training needs assessments are commonly used to guide CPD planning, yet they tend to produce broad, generic programs rather than personalized development paths. Institutions often focus on filling departmental or organizational gaps, which means individual trainers' unique needs can be overlooked. This limits the impact of professional growth efforts. Moving forward, CPD would benefit greatly from more tailored approaches; ones grounded in structured self-assessments and clear follow-up mechanisms to better target specific skills and competencies.

Student feedback, despite its potential to directly inform and improve teaching quality, is underused in shaping CPD initiatives. The absence of formalized systems to gather, analyse, and respond to learner evaluations represents a missed opportunity. Establishing reliable feedback loops would help ensure that trainer development is more closely aligned with the actual needs and experiences of students, making CPD more relevant and impactful.

There is greater industry collaboration in the TVET sector, particularly following legislative reforms like the TVET Act 2025, which encourage private sector involvement. However, these partnerships remain largely informal, sporadic, or linked to short-term projects. While tracer studies and employer consultations offer useful insights, the absence of continuous, institutionalized engagement means CPD content often lags evolving labour market needs. Strengthening frameworks for sustained collaboration with industry is essential to keep CPD practical, relevant, and responsive.

Trainer involvement in CPD planning was partial at best. Although trainers participate through appraisals and occasional informal consultations, their voices are frequently overshadowed by top-down decisions and donor-driven priorities. This mismatch can result in training programs that do not fully address the realities trainers face daily. Empowering trainers to actively co-design their CPD paths would increase ownership, boost motivation, and better align professional development with practical challenges.

Skills assessments to identify trainer gaps are rarely systematic or competency based. General performance appraisals often fail to capture the nuanced competencies needed, which undermines the ability to deliver focused and effective CPD. Implementing standardized, competency-focused skills audits would provide a clearer, data-driven picture of development needs and enable more precise interventions.

Personalized CPD is increasingly recognized as valuable, but institutional and resource limitations mean most programs remain focused at the departmental or institutional level. This disconnect between identified needs and actual training delivery highlights the need for dedicated policies and budgets that support individualized development plans, ensuring trainers' growth is not overshadowed by broader organizational priorities.

Emerging technologies and industry trends are increasingly influencing CPD design, but integration remains uneven across institutions. Partnerships and sector skills councils signal positive movement, yet inconsistent engagement and limited resources slow down full adoption. Prioritizing ICT integration and regularly updating CPD content based on industry developments will be crucial to keeping training relevant in a rapidly changing environment.

The mechanisms for trainers to request specific CPD opportunities do exist, but they are often underutilized due to limited awareness and weak communication. Sensitizing staff through inductions and ongoing policy reminders would help ensure these request systems are accessible and actively used, making CPD more responsive to trainers' actual needs.

Monitoring and evaluation around CPD needs identification are weak and largely informal, focusing on outputs rather than outcomes. Without structured tools to assess effectiveness, there is little feedback to guide improvement. Developing robust, outcome-oriented evaluation frameworks will close these gaps, supporting continuous refinement and better alignment of CPD programs with trainers' evolving development requirements.

Objective 3: Determine adoptable innovative CPD strategies that can improve the competences of TVET master trainers in the Instructor Training Institution in Uganda

Digital learning tools hold considerable promise for enhancing the flexibility and reach of CPD, yet their integration remains patchy and underdeveloped across institutions. Despite recognition of their value in national strategies, practical challenges such as unreliable internet connectivity, digital fatigue among trainers, and the absence of

coordinated institutional support impede consistent adoption. Without a comprehensive system that addresses infrastructure, capacity building, and clear operational guidelines, the transformative potential of digital CPD remains largely untapped.

Mentorship emerges as a highly valued approach for fostering professional growth and peer-supported learning. However, it operates predominantly through informal, localized practices rather than through formalized or nationally guided frameworks. This results in uneven access and variable quality across institutions. Establishing standardized mentorship programs with clear pairing processes, roles, and accountability would strengthen mentorship's contribution to sustained trainer development within the TVET sector.

Peer learning is widely embraced as an effective mechanism for knowledge exchange and skills development, yet its impact is limited by confinement within single institutions. The lack of structured collaboration or platforms for cross-institutional engagement restricts the sharing of best practices and collective problem-solving. Expanding peer learning into inter-institutional networks and embedding it into national CPD strategies would broaden its influence and create a more cohesive professional learning community.

Hands-on, industry-aligned CPD activities are consistently prioritized for their role in linking theory to practice, but their success depends heavily on available resources. Disparities in access to up-to-date equipment and meaningful industry partnerships undermine equitable participation. Strengthening public-private partnerships and developing resource-sharing frameworks are essential to guarantee all trainers can engage in practical learning that reflects current industry realities.

Mobile learning platforms show untapped potential as accessible and flexible avenues for CPD, especially for trainers in remote or time-constrained settings. However, their use is currently informal and fragmented, often relying on platforms like WhatsApp without dedicated mobile-friendly content or institutional backing. Strategic investment in mobile infrastructure and the development of tailored, user-centred mobile learning modules would democratize access to CPD and accommodate diverse learner needs.

Soft skills development is increasingly acknowledged within CPD programs but tends to be secondary to technical competencies. This imbalance reflects a preference for measurable, job-specific skills over broader interpersonal or professional attributes. Integrating soft skills systematically into CPD curricula, informed by industry feedback, would better prepare trainers for the multifaceted demands of the modern workplace.

CPD scheduling reflects growing sensitivity to trainers' workloads, with initiatives such as offering sessions during term breaks. Nonetheless, rigidity in timing continues to exclude those with conflicting personal or professional commitments. Embracing more flexible, modular, and hybrid delivery models would make CPD more accessible and sustainable, supporting trainers' continuous growth without compromising work-life balance.

Participation in external CPD activities, such as conferences and professional networks, exposes trainers to global knowledge and trends but remains uneven and largely reliant on donor funding or personal initiative. Institutionalizing funding streams and transparent selection criteria would promote equitable access, reinforcing a culture of continuous professional engagement.

CPD activities grounded in real-world projects are recognized for their ability to enhance relevance and deepen learning. Yet, their implementation is hindered by

inconsistent access to equipment and limited funding. Prioritizing collaborative projects, pooling resources, and formalizing public-private partnerships would expand these opportunities, better aligning CPD with practical labour market needs and fostering trainers' applied competencies.

5.4 Recommendations

Based on the study conclusions, the following practical and feasible recommendations are offered for policymakers, institutional leaders, and stakeholders involved in the design, implementation, and support of Continuous Professional Development (CPD) for TVET trainers, aimed at enhancing the effectiveness, accessibility, and relevance of professional learning programmes.

Objective 1: Assess the current CPD practices available for TVET trainers in instructor training institutions in Uganda

(i) Policy recommendations for Ministry of Education and Sports

- Ministry of Education and Sports should develop CPD policy, framework and guidelines for TVET instructor training institutions. A standardized policy, framework and guidelines should guide content relevance, delivery methods and access, ensuring equitable, consistent, and nationally coordinated CPD provision**.** This policy, framework and guidelines must ensure equitable access across all institutions and regions, whereas also integrating emerging skills such as digital literacy and green technologies.
- Industry partnerships should be formalized through developing Industry training attachment policy, framework and guidelines to strengthen collaboration between TVET institutions and industries. To guide the process of structured agreements that include joint curriculum reviews, trainer internships, and

industry-led workshops. Industry representatives should actively participate in CPD from skills sector expert, TVET Council, Assessment Board Councils to ensure training aligns with labour market needs.

- CPD recognition systems should link participation directly to promotions, salary adjustments, and professional licensing. The Ministry of Public Service, Ministry of Education and Sports, TVET council should revise appraisal mechanisms and scheme of service to reward trainers who apply and successfully attain CPD learnings.
- Government and development partners should invest in digital CPD infrastructure, including low-bandwidth e-learning platforms, subsidized connectivity, and ICT training for all trainers. Institutions must also equip training spaces with computers and internet to support blended learning.

(ii) TVET Trainer Institutions recommendations

- Formal mentorship programmes should be embedded in institutions, pairing junior trainers with experienced colleagues under structured guidelines. Progress should be tracked through set objectives, mentorship reports, and inclusion in trainer evaluations.
- Hands-on training opportunities should be strengthened by expanding access to industry-standard tools, modern equipment, and real-world project engagements. Partnerships with employers should be enhanced to facilitate trainer attachments, industry workshops, and joint exposure visits with students through structured collaborations between TVET institutions and industry partners. Continuous industrial training should be institutionalized for in-service trainees to bridge existing skills gaps and provide practical, hands-on experience aligned with current industry practices.

- Institutions must also equip training spaces with computers and internet to support blended learning through their planning, budgeting and implementation. TVET trainer of trainers' institution should promote institutional based CPD

(iii) TVET Trainers

- TVET trainers should participate in professional learning communities of practice and continuous industrial training attachments to enable skill enhancement and development.
- There is need to conduct action research to inform innovations in the National Instructors College Abilonino. These practices enhance the competences of TVET trainers in research.

Objective 2: Examine the strategies used in identifying the training needs of TVET trainers in the Instructor Training Institution in Uganda

(i) Policy recommendations

- Education Development Partners and MoES should integrate structured skills assessments and industry-aligned tools into TVET training needs analysis. Using formal diagnostic assessments and involving industry representatives ensure targeted CPD that directly addresses real-world skill gaps.
- TVET Council, Uganda Vocational Technical Assessment Board (UVTAB), and TVET Trainers' Training Research and Innovation (TTTRI) department should institutionalize student feedback mechanisms and formal performance appraisals to inform CPD planning for trainers. Regular, structured feedback from learners and systematic performance reviews should guide individualized CPD initiatives.

(ii) TVET Master Trainers Recommendations

- Institutions should develop individualized CPD plans based on annual performance reviews, classroom observations, and self-assessment tools. The ministry of education and sports' human resource department, working with departmental heads, should guide trainers in co-designing development roadmaps.
- Institutions should adopt clear monitoring and evaluation frameworks to track CPD effectiveness. Indicators must capture outcomes such as changes in teaching practices and learner performance, with results shared transparently.
- Sustainable funding for CPD should be prioritized in institutional and government budgets, with additional support mobilized from private sector partnerships and donors. Resources should cover training infrastructure, facilitator support, and content development.
- Structured student feedback systems should be institutionalized through anonymous course evaluations, focus group discussions, and feedback analysis. Departments should use these insights to adjust training priorities and address gaps in teaching practices.

(iii) TVET Master Trainers Recommendations

- TVET master trainers should actively participate in identifying their own training needs and work collaboratively with departmental heads to determine priority areas for capacity development. Agreed training needs should then be addressed through internal programs or by engaging external experts from the world of work to ensure that identified skill gaps are effectively bridged.

Objective 3: Determine adoptable innovative CPD strategies that can improve the competences of TVET master trainers in the Instructor Training Institution in Uganda.

(i) Policy Recommendations

- A hybrid CPD model should be adopted as it provides a comprehensive and strategic framework for the professional growth of TVET Master trainers (Appendix X). It should align with national instruments such as the TVET Act 2025 and the MoES Strategic Plan, to ensure that training remains relevant and supported at policy level. It should incorporate mentoring, communities of practice, and collaborative action research to foster sustained and transformative learning. It should also emphasize continuous needs assessment, industry exposure, modern TPACK and blended learning skills, and ongoing monitoring and evaluation for continuous improvement.
- Centralized pedagogical/andragogical innovation laboratory should be established at NICA to serve as an innovation hub for trainer training and development. Equipped with ICT infrastructures, simulation tools, flexible classrooms, and modern teaching technologies like AI, the lab will allow trainers to trial methods, conduct action research, and engage in reflective practice. Partnerships with universities and education technology providers can align the lab's work with CPD modules in pedagogy, curriculum design, and learner-centred teaching. This lab will function as a hub for resource sharing, best practices and experimental teaching models to reduce fragmentation in CPD delivery.
- Investment in digital learning infrastructure is vital for expanding CPD access and quality. Institutions need stable internet, digital studios, and platforms that

work well even with low bandwidth, supported by trainer capacity-building in digital skills. Integrating tools like virtual simulations, e-assessment systems, and other emerging technologies, alongside partnerships with tech firms and innovation hubs, will keep CPD relevant and up to date.

(ii) TVET Trainer Institutions

- Mobile learning platforms should be leveraged to extend CPD to remote trainers. App-based micro-courses and SMS-based modules can make training more inclusive. Partnerships with telecom companies and subsidies for data access would ensure affordability and reach.

(iii) TVET trainers

- Trainers should be supported to participate in external learning opportunities such as conferences, short courses, and regional knowledge exchanges. The ministry should become deliberate in funding these initiatives to expose trainers to global best practices

5.5 PhD Contributions

5.5.1 Areas for further Research

Whereas this study has provided valuable insights, several areas remain underexplored and warrant further investigation to deepen the understanding of CPD effectiveness in the TVET sector:

- Trainer motivation and attitude toward CPD: Future research should examine the role of individual trainer motivation and attitudes in shaping CPD outcomes. A trainer's willingness to engage with professional development initiatives often determines whether new knowledge is internalized or dismissed. Understanding

what drives or hinders this motivation could help tailor CPD programs to be more impactful and engaging.

- Quality of CPD Facilitators**:** The competence and delivery style of facilitators can significantly affect the quality and impact of training sessions. Future studies should assess facilitator qualifications, preparation, and pedagogical approaches to identify what makes CPD sessions more effective and engaging for adult learners in technical and vocational fields.
- Availability and utilization of funding for CPD: Limited or inconsistent funding remains a major barrier to CPD implementation. Research into how institutions budget for CPD, how funds are used, and the effects of funding levels on programme frequency and quality can help develop sustainable financing models.
- Relevance of training content to industry demands**:** CPD programs that are not aligned with evolving industry needs may fail to equip trainers with applicable skills. Studies exploring how industry trends are integrated into CPD curricula, and how this alignment impacts trainer competence and trainee outcomes, could lead to more responsive and meaningful training.
- Interaction between systemic support and individual factors**:** Further research should explore how institutional factors (like leadership support and resource availability) interact with personal factors (like motivation and prior experience) to influence CPD outcomes.

5.5.2 Theory of change for Continuous Professional Development for TVET master trainers

- Theory of Change (ToC) is applicable to Continuous Professional Development (CPD) for TVET trainers in Uganda. The ToC maps out the steps needed to

achieve improved competencies and performance among trainers, ultimately enhancing the quality of technical education and its alignment with labour market needs.

- Inputs for the CPD programme are human resource, instructional materials, policy frameworks, funding, industry partnerships, digital platforms, internet, library, tools and equipment's
- Activities are through perform training needs assessment (TNA), co-design of continuous professional development (CPDs), delivering CPD modules, engaging trainers in mentorship programmes, attaching TVET trainers to industries, conducting action research, assessing CPDs, co-designing and implementing structured CPD programmes (workshops, seminars, conferences, mentorships, online learning). Collaborating with industry stakeholders to align curricula with real-world skills. Establishing monitoring and evaluation mechanisms to assess CPD effectiveness. Providing incentives for trainers to engage in CPD (certifications, career progression).
- Processes for the CPD programme are the mapping of pedagogical needs, needs analysis of CPD of the trainers, development of CPDs courses, creating a group of Master trainers (master trainers), quality assurance and success criteria, training, mentoring, conduct research and others.
- Outputs for the CPD programmes are certified trainers with updated skills and competencies. Development of CPD frameworks aligned with national standards. Delivery of modular training programs (digital literacy, pedagogy, and technical advancements). Partnerships with industries for practical exposure and apprenticeships. Certification and accreditation mechanisms for TVET trainers.

- Outcomes for the CPD programmes are improved teaching quality and better alignment with labour market needs. Increased participation of TVET trainers in structured CPD programmes. Improved pedagogical and technical competencies. Stronger industry linkages for practical training exposure. Improved instructional quality and learner engagement. Enhanced relevance of training programmes to labour market needs. Increased trainer motivation and professional satisfaction.
- Impact for the study was enhanced TVET sector, increased employability, and national economic growth the indicators of success (monitoring and evaluation) would be the number of trainers participating in CPD programmes annually. The improved learner outcomes (e.g., pass rates, employability). Employer satisfaction with graduates' competencies. Longitudinal tracking of career growth for trainers.
- Assumptions were supportive policy environment, government commitment and trainer willingness and motivation to engage in CPD. Availability of resources for programme delivery. Industry collaboration and knowledge-sharing culture.

5.5.3 Policy shift of CPD for TVET master trainers

There is a need to develop a specific CPD TVET trainer's policy, framework, or guideline to instructor training institutions, government bodies, and other stakeholders to support the implementation and sustainability of effective CPD strategies for TVET trainers. By focusing on this area, this study will contribute significantly to the field of TVET system enhancement, ultimately leading to better-trained TVET trainers,

improved student outcomes, and a stronger connection between Instructor training institutions and industry needs.

There is a need for a paradigm in CPD for TVET trainers by developing an industrial training attachment policy, framework, and guidelines to recognize TVET trainers as critical change agents who require direct industry experience to properly transmit skills to learners. It would make necessary, periodic industry attachments for trainers as part of their professional development. It would strengthen cooperation between TVET universities and industries through memorandums of understanding and industry-led training modules. The policy focus moves from knowledge-based instruction to competency-based, industry-responsive education. Creates incentives and clear structures for trainers to engage and gain from industry placements. This paradigm shift will guarantee that TVET trainers are more than simply TVET trainer, but also industry-ready mentors, increasing the relevance, quality, and employability of TVET graduates. Uganda's aspiration to become a middle-income economy requires such revolutionary methods to skills development.

5.5.4 Contributions to theory

The findings of this study largely affirm the core assumptions of Experiential Learning Theory, particularly the importance of active engagement in learning processes as central to professional development. The emphasis on practical, hands-on learning and real-world projects within CPD programmes clearly echoes Kolb's first stage of Concrete Experience. Trainers are not passive recipients of knowledge; rather, they engage directly with tasks, whether through industry-linked projects or mentorship. This active participation creates a foundation for deeper learning, supporting the idea that

experience is not just a backdrop but the very starting point of effective competence development.

Moving beyond participation, the findings also underscore the significance of reflective observation, a stage that ELT positions as critical for making sense of experiences. The qualitative insights revealing informal peer learning, mentorship, and collaborative workshops hint at reflective spaces where trainers assess their practice with others. These interactions provide opportunities for feedback, discussion, and self-evaluation, fostering the reflective mind-set that ELT advocates. Yet, the largely informal nature of these processes, and the absence of structured reflection mechanisms, suggest that this stage is underdeveloped institutionally. This gap resonates with Moon's (2006) assertion that reflection is a skill that must be deliberately cultivated and supported, rather than assumed to happen naturally.

When it comes to abstract conceptualization; the phase where learners integrate reflection into new understanding; the findings present a mixed picture. Trainers are exposed to both technical and soft skills development, which theoretically should help them formulate new frameworks for teaching and engagement. However, the inconsistent integration of soft skills and the uneven formalization of mentorship and peer learning indicate that conceptualization may be fragmented or superficial in some contexts. This observation aligns with Beard and Wilson's emphasis on the role of environment and institutional culture in shaping learning transfer. Without strong, consistent institutional support, trainers may struggle to develop robust conceptual understandings that guide future practice.

Regarding active experimentation, the findings highlight that trainers often apply new knowledge in real settings through hands-on experiences and workplace-based learning,

fulfilling this stage of the ELT cycle. The incorporation of real-world projects and mentorship encourages ongoing experimentation, linking theory to practice. However, resource constraints and variability across institutions sometimes limit this experimentation. This points to a practical challenge: while ELT assumes a smooth cyclical process, external factors such as infrastructure and policy shape the learner's ability to fully engage in active experimentation, reinforcing Jarvis's notion of disjuncture, where external disruptions influence the learning cycle.

The findings also support Jarvis's idea of disjuncture, reflecting moments when trainers encounter challenges that disrupt their assumptions and prompt deeper learning. For example, limited digital literacy or connectivity issues with e-learning platforms create tension that can lead trainers to re-evaluate their approaches and seek alternative strategies. This highlights that experiential learning is not always linear or predictable; rather, it is shaped by contextual barriers that force adaptation and innovation. These disruptions, while challenging, may serve as catalysts for growth if properly managed, pointing to the need for institutions to provide supportive environments that help trainers navigate such disjuncture.

Overall, the findings reinforce the importance of considering contextual and institutional factors in experiential learning. They echo Beard and Wilson's expansion of ELT to include emotional and environmental dimensions, showing that competence development is deeply embedded within institutional realities. This suggests that CPD programmes should incorporate systemic and organizational perspectives alongside individual learning processes, recognizing that experiential learning in professional development is shaped as much by the surrounding environment and culture as by the learner's personal experiences and reflections.

5.5.5 Contribution toward to methodology

This thesis makes a significant methodological contribution by demonstrating how a pragmatic, sequential-explanatory mixed-methods design can be rigorously implemented within a low-resource Ugandan TVET context. Grounded in the pragmatist paradigm, the study exemplifies how quantitative breadth (n = 74 master trainers) and qualitative depth (10 key-informant interviews, 3 focus group discussions, and institutional documents) can be effectively combined to produce credible, policy-relevant findings. This integration ensured that statistical insights on Continuous Professional Development (CPD) effectiveness were supported by contextual realities drawn from participants' lived experiences. The design provides a model for researchers working under tight budgets or limited timeframes, showing that high-quality mixed-methods research can still be achieved without compromising depth, accuracy, or policy relevance.

A second major contribution lies in the development of a replicable sampling strategy and instrument-validation process. The study adopted a stratified random-plus-purposive sampling approach that captured diverse perspectives from master trainers across three public colleges, alongside ministry officials and industry stakeholders. This ensured representativeness while accommodating the dispersed nature of Uganda's TVET system. Through a structured pilot-to-validation sequence (15 pilot cases), followed by Exploratory Factor Analysis (EFA) and reliability testing; the research produced a robust nine-dimensional CPD–competence questionnaire. The instrument is now available as an open-source tool for future scholars, offering a reliable and adaptable measure for evaluating CPD and professional competence among trainers in similar low-resource environments across Sub-Saharan Africa.

The study also advances the methodological landscape by integrating advanced analytical and reporting techniques rarely applied in African TVET research. Through Hayes' PROCESS macro, the analysis tested whether institutional status mediates the relationship between CPD strategies and trainer competence, accounting for 30 percent of the variance. This quantitative analysis was enriched through the integration of qualitative findings by presenting joint themes alongside corresponding statistical results, allowing both strands to illuminate and deepen the understanding of each other. This alignment enabled a deeper understanding of how the numbers connected with participants' lived experiences and institutional realities. The triangulation of results across the two data types strengthened the overall interpretation and provided a coherent narrative that explained not only what relationships existed, but also why they occurred. This approach offers a practical model for future mixed-methods researchers who wish to present statistical evidence and qualitative insights into a single, meaningful discussion that captures both empirical rigor and contextual depth.

Finally, the thesis contributes practical insights for conducting field research in settings characterized by infrastructural limitations. The study demonstrated how the use of offline Kobo Collect forms, WhatsApp voice-note interviews, and encrypted cloud backups can overcome challenges of poor electricity and internet connectivity. These techniques achieved an impressive 87 percent response rate without the need for extensive travel. In addition, the research provides a clearly documented ethical framework, outlining the full Institutional Review Board (IRB) process in Uganda; from the Gulu Research Ethics Committee (Gulu-REC), through the Uganda National Council for Science and Technology (UNCST), to final clearance by the Ministry of Education and Sports (MoES). This mapped pathway serves as a practical guide for future doctoral candidates and institutional researchers engaging with government-

affiliated personnel. Together, these methodological innovations form a transferable template for evaluating CPD and similar professional development interventions in low-resource or policy-driven environments.

5.5.6 Contribution to TVET Master Trainers' Practices

- Establishment of a pedagogical/andragogical laboratory through this facility will provide a hands-on environment for educators to study effective teaching approaches for both conventional and adult learners.
- National CPDs to ensure that all trainers complete necessary general and specific CPDs to fulfil national requirements and address sector-specific needs.
- TVET Trainers of Trainer Development Management Systems (TTDMS) - Regional Cluster for CPDs: Establishing regional clusters to coordinate and support Continuing Professional Development (CPD) programmes that improve trainer skills and expertise.
- Industry-Aligned CPD Programmes: Creating a CPD curriculum that closely addresses current labour market and industry demands, ensuring trainer skills are relevant and up to date.
- Mentorship programme through implementing a systematic mentorship system with Lead Practitioners, Senior mentors, and Principal mentors to promote TVET trainers' continued professional development
- Professional learning communities of practice through creating communities of practice for trainers to promote collaboration, peer learning, and the exchange of best practices.

5.6 Limitations of the study

The study faced some limitations, though strategies were employed to mitigate their impact, and recommendations are provided for future research. Some respondents, particularly TVET trainers and institutional officials, were hesitant to provide full information due to concerns about job security or institutional reputation. To address this, the researcher ensured confidentiality and anonymity, emphasizing that responses would be used strictly for academic purposes. Future studies could complement direct responses with institutional ethnography or content analysis of internal documents to further reduce respondent bias.

The study's document review was limited and did not include some institutional records or policy documents that could have provided richer historical and contextual insights. This was partially mitigated by triangulating interview data with available official publications and policy frameworks. Future research could secure formal agreements with institutions in advance to allow broader access to internal documents, enhancing the depth and reliability of the analysis.

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APPENDICES

Appendix I: Questionnaire for TVET Master Trainers

Dear Respondent,

My name is Sempala Sabastian, a PhD candidate in Technology Education (TVET Option) at the University of Eldoret, Kenya. I am conducting a study titled *"***Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda***"* as part of the requirements for my degree. You have been purposively and randomly selected to participate in this academic study. The information you provide will be treated with strict confidentiality and used solely for research purposes. Participation is voluntary, and you are free to withdraw at any time. This questionnaire is anonymous, please do not include your name. Your honest responses are highly appreciated.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

Instructions: Please tick (✓) the most appropriate option for each question.

No.	Category	Answer Options
1.	Gender	☐ Male ☐ Female
2.	Age	☐ 18–30 ☐ 31–40 ☐ 41–50 ☐ 51–60 ☐ ≥61
3.	Current Qualification	☐ Diploma ☐ Degree ☐ Master's
4.	Years of Experience in TVET Teaching	☐ 1–5 ☐ 6–10 ☐ 11–15 years ☐ ≥16
5.	Institution Name	☐ Jinja VTI ☐ NICA ☐ Nakawa VTC

INSTRUCTIONS FOR SECTIONS B TO F

The following statements relate to various aspects of Continuing Professional Development (CPD), training needs identification, innovative CPD strategies, institutional capacity, and trainer competences. Please indicate the extent to which you agree or disagree with each statement by ticking (✓) the option that best represents your opinion on the scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

SECTION B: CURRENT CPD PRACTICES

	Statement	1	2	3	4	5
1.	My institution regularly organizes CPD programmes for trainers.					
2.	CPD programmes at my institution are relevant to my technical field.					
3.	CPD activities are accessible to all trainers regardless of their location.					

4.	I receive timely information about upcoming CPD opportunities.					
5.	CPD programmes include both theoretical and practical components.					
6.	CPD sessions are facilitated by knowledgeable and experienced instructors.					
7.	The content of CPD programmes is regularly updated to reflect industry trends.					
8.	My institution encourages trainers to share knowledge gained from CPD with colleagues.					
9.	Participation in CPD programmes is recognized and rewarded by my institution.					

SECTION C: STRATEGIES FOR IDENTIFYING TRAINING NEEDS

	Statement	**1**	**2**	**3**	**4**	**5**
1.	My institution uses performance appraisals to identify trainers' CPD needs.					
2.	Feedback from students is used to determine areas where trainers require development.					
3.	Industry stakeholders are consulted to align trainer skills with labour market demands.					
4.	Trainers are involved in identifying their own professional development needs.					
5.	Regular skills assessments are conducted to identify gaps among trainers.					
6.	CPD plans are customized based on individual trainer needs.					
7.	Emerging technologies and industry changes are considered when identifying training needs.					
8.	There is a formal process for trainers to request specific CPD training.					
9.	The institution monitors and evaluates the effectiveness of training needs identification strategies.					

SECTION D: ADOPTABLE INNOVATIVE STRATEGIES TO ENHANCE CPD

	Statement	**1**	**2**	**3**	**4**	**5**
1.	My institution integrates digital learning tools (online courses, webinars) into CPD programmes.					
2.	Mentorship programmes are part of the CPD strategy for trainers.					
3.	Peer learning and collaborative workshops are used to enhance CPD effectiveness.					

4.	CPD programmes include practical, hands-on learning opportunities relevant to the workplace.					
5.	Mobile learning platforms are used to increase access to CPD resources.					
6.	Innovative CPD approaches address both technical and soft skills development.					
7.	CPD programmes are flexible to accommodate trainers' work schedules.					
8.	There is support for trainers to attend external conferences, seminars, or professional networks.					
9.	The institution encourages the use of real-world projects within CPD activities.					

SECTION E: STATUS OF INSTRUCTOR TRAINING INSTITUTIONS

	Statement	**1**	**2**	**3**	**4**	**5**
1.	The institution has adequate infrastructure to support effective CPD activities.					
2.	There is sufficient funding allocated for CPD programmes at my institution.					
3.	Management actively supports and promotes continuous professional development.					
4.	The institutional culture values lifelong learning and professional growth.					
5.	Trainers have access to up-to-date instructional resources and technology.					
6.	Institutional policies clearly define CPD expectations and requirements for trainers.					
7.	There are mechanisms in place to monitor trainers' participation in CPD.					
8.	Collaboration exists between the institution and industry partners to support CPD.					
9.	Institutional leadership communicates the importance of CPD regularly to staff.					

SECTION F: TVET TRAINER COMPETENCES

	Statement	1	2	3	4	5
1.	I am able to plan and execute training programmes efficiently.					
2.	I communicate technical concepts clearly to trainees.					
3.	I use participatory teaching methods that actively engage trainees.					
4.	I engage in research activities to improve my understanding of current industry practices.					
5.	I apply innovative approaches to enhance learning experiences.					
6.	I integrate ICT tools and platforms to enhance the learning experience of my trainees.					
7.	I demonstrate strong hands-on skills relevant to my technical field.					
8.	I utilize a variety of instructional resources to support diverse learning needs.					
9.	I implement diverse assessment methods to accurately evaluate trainee performance.					

THANK YOU FOR YOUR PARTICIPATION

Appendix II: Interview Guide for Principals

Introduction:

Thank you for agreeing to participate in this interview. This study seeks to explore **Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda**. Your insights are valuable and will help to deepen our understanding of CPD policies, practices, challenges, and opportunities. Your responses will be kept confidential and used for academic purposes only.

SECTION A: Current CPD Practices for Trainers

1. How would you describe the current state of CPD implementation for trainers in your institution?
2. What informs the design and content of CPD programmes offered to trainers?
3. To what extent are CPD programmes tailored to different technical fields or specializations?
4. What mechanisms exist to ensure that CPD programmes are accessible across different regions or campuses?
5. How do you ensure that CPD content is updated to match current industry standards and trends?
6. Are there systems in place to track who attends CPD programmes and how often?
7. In your opinion, how do trainers perceive the value and usefulness of CPD sessions?
8. Does the institution have any rewards or recognition systems tied to CPD participation?
9. What are some of the challenges you've observed in organizing or implementing CPD programmes?

SECTION B: Strategies for Identifying Training Needs

10. What approaches are used to identify the training and development needs of TVET trainers in your institution?
11. How often is performance appraisal used to inform CPD needs?
12. Is student or trainee feedback ever incorporated when designing CPD content?
13. How is input from employers or industry stakeholders used to shape CPD?
14. Do trainers participate in identifying their own CPD needs? If so, how?

15. Are there tools or systems in place for regular assessment of trainer competences?
16. How flexible is the institution in customizing CPD for individual trainers?
17. In your experience, what are some challenges in accurately identifying trainers' professional development needs?
18. How do you assess whether your training needs identification strategies are effective?

SECTION C: Adoptable Innovative Strategies to Enhance CPD

19. Are digital learning tools (webinars, online courses) integrated into your CPD programmes? If yes, how effective are they?
20. What is the role of mentorship or coaching in your CPD programmes?
21. Do you use peer learning or collaborative workshops as part of your CPD strategy? How successful have they been?
22. What hands-on or workplace-based learning opportunities are provided through CPD?
23. How have mobile or remote learning platforms been used to improve access to CPD?
24. In your view, are current CPD strategies addressing both technical and soft skills of trainers?
25. How flexible are CPD schedules, and how do they accommodate trainers' existing workloads?
26. Are there provisions for trainers to attend external learning events such as conferences or seminars?
27. Have you experimented with real-world projects or industry-linked training in CPD? If so, how was it received?

SECTION D: Institutional Support for CPD

28. How would you describe your institution's capacity in terms of infrastructure for delivering CPD?
29. Are CPD programmes consistently funded, and what challenges exist around financing them?
30. How supportive is top management in promoting continuous professional development?
31. Would you say the institutional culture supports or hinders ongoing learning and CPD?
32. Are trainers well-equipped with teaching and learning resources, including ICT tools?

33. Does your institution have any clear policy or guideline that defines CPD expectations?
34. How do you monitor and track trainer participation in CPD activities?
35. What kind of collaborations exist between your institution and industry or development partners to support CPD?
36. How is the value of CPD communicated to both staff and stakeholders?

SECTION E: Trainer Competences

37. Based on your observation, how competent are your trainers in areas such as planning, communication, and content delivery?
38. How do trainers adapt their methods to engage learners in practical, hands-on activities?
39. Are trainers regularly using participatory or learner-centred teaching methods?
40. To what extent are trainers involved in research or industry engagement to enhance their practice?
41. How innovative are your trainers in applying new instructional approaches or technologies?
42. Are ICT tools being integrated effectively into lesson delivery?
43. How confident are trainers in demonstrating technical and practical competences in their fields?
44. How diverse are the instructional resources used in teaching and learning?
45. What assessment practices are commonly used, and how effective are they in evaluating learning outcomes?

Appendix III: Interview Guide for MoES Officials

Introduction:

Thank you for meeting with us. We are conducting a study on **Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda**. As a departmental head within the Directorate of Higher Technical and Vocational Education and Training (HTVET), your insights are critical to understanding how national policies, systems, and structures influence CPD implementation across the country. This interview focuses on your perspectives regarding current CPD practices, strategies for identifying training needs, innovative and adoptable approaches, the institutional readiness of training colleges, and the overall competences expected of TVET trainers. Your reflections will help inform practical, evidence-based recommendations to strengthen CPD delivery and effectiveness in Uganda's TVET system.

Section A: Current CPD Practices

1. How would you describe the current status of CPD implementation for TVET trainers across Uganda?
2. To what extent are CPD programmes aligned with the technical specializations of trainers?
3. What measures are in place to ensure CPD activities reach trainers in remote or underserved areas?
4. How is information about CPD opportunities communicated to TVET institutions and trainers?
5. Are there mechanisms to ensure that CPD includes both theory and hands-on practice?
6. What is the process for selecting or training CPD facilitators?
7. How does the Ministry ensure that CPD content reflects current industry trends?
8. Is there any expectation or framework for knowledge-sharing among trainers post-CPD?
9. Does the Ministry have provisions or incentives for recognizing and rewarding CPD participation?

Section B: Strategies for Identifying Training Needs

10. What mechanisms exist at national level to identify the professional development needs of TVET trainers?
11. Does the Ministry encourage or support the inclusion of student feedback in determining CPD priorities?

12. How involved are employers and industry stakeholders in shaping the training needs for TVET trainers?
13. What is the role of self-assessment or trainer-initiated feedback in identifying CPD needs?
14. Are there regular skills audits or assessments conducted among TVET trainers?
15. How individualized are CPD plans for trainers across different institutions?
16. What role does technological advancement play in shaping CPD content and design?
17. Do trainers have formal channels through which they can request specific CPD support?
18. How does the Ministry track or evaluate the effectiveness of the training needs identification process?

Section C: Adoptable Innovative Strategies to Enhance CPD

19. How is the Ministry promoting digital learning tools (webinars, e-learning platforms) in CPD?
20. Are mentorship programmes or peer-learning initiatives supported at the national level?
21. What steps has the Ministry taken to promote collaborative or experiential CPD approaches?
22. How is hands-on, industry-relevant training incorporated into CPD design nationally?
23. Are there national initiatives to support mobile learning or remote access to CPD?
24. Does the Ministry promote the integration of soft skills development into CPD content?
25. Are CPD programmes flexible enough to accommodate trainers' workloads and teaching schedules?
26. What is the Ministry's position on supporting participation in external professional events like conferences or seminars?
27. Are there efforts to promote the use of real-life projects in CPD delivery?

Section D: Status of Instructor Training Institutions (Intervening Variable)

28. How would you assess the institutional capacity of current instructor training colleges in delivering CPD?
29. Is the current funding for CPD activities in TVET institutions sufficient? What are the gaps?
30. How does the Ministry support institutional leadership to prioritize and promote CPD?

31. Would you say there is a strong culture of continuous learning within instructor training institutions?
32. What resources (technology, teaching materials, infrastructure) has the Ministry prioritized for CPD support?
33. Are there national CPD policy guidelines that institutions are required to follow?
34. How does the Ministry monitor or audit CPD participation and outcomes across institutions?
35. Is there structured collaboration between instructor training institutions and the private sector to enhance CPD?
36. What strategies are in place to ensure institutional leadership consistently communicates the importance of CPD?

Section E: Trainer Competences

37. What is the Ministry's benchmark or framework for expected trainer competences?
38. How does CPD contribute to enhancing trainers' skills in planning, communication, and technical delivery?
39. Are there national efforts to ensure trainers are competent in participatory and inclusive teaching methodologies?
40. What efforts exist to encourage trainers to engage in research and innovation?
41. How is ICT integration in instruction being promoted or measured across TVET trainers?
42. Does the Ministry support assessments to ensure trainers are effectively delivering practical, hands-on training?
43. How is the use of instructional materials monitored or improved through CPD?
44. What frameworks guide how trainers conduct assessments and provide learner feedback?

Closing Prompt:

45. What are the biggest challenges and opportunities the Ministry sees in enhancing CPD for TVET master trainers in Uganda?

Appendix IV: Interview Guide for EDPs and Industrial Stakeholders

Introduction:

Thank you for meeting with us. We are conducting a study on **Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda**. Your organization plays a critical role in supporting these initiatives. We would like to hear your perspectives on CPD strategies, training needs assessment, innovative approaches, institutional capacity, and trainer competences. Your insights will support recommendations for strengthening TVET in Uganda.

Target Group:

- **Education Development Partners** (KOICA, Enabel, UNESCO, VVOB)
- **Industry Stakeholders** (UMA, FUE, USSIA, Kakira Sugar, HOMA Farm)

Purpose:
To explore the role of development partners and industry in supporting CPD initiatives, aligning skills development with market needs, and enhancing the overall effectiveness of CPD for TVET trainers in Uganda.

Section A: Introduction & Context

1. Can you briefly describe your organization's involvement in Uganda's TVET sector, particularly in relation to CPD for trainers?
2. What are the main areas of CPD support or collaboration your organization has offered between 2020 and 2024?

Section B: Current CPD Practices

3. From your perspective, how would you assess the current status and relevance of CPD programmes provided to TVET trainers in Uganda?
4. How involved is your organization in designing or delivering CPD content? Are the programmes aligned with real industry needs and technological shifts?
5. How accessible and inclusive do you think current CPD opportunities are for trainers across various regions or trades?

Section C: Training Needs Identification

6. Does your organization participate in identifying training needs for TVET trainers? If yes, how is this done (e.g., through TNAs, tracer studies, employer feedback)?
7. In your view, to what extent are CPD needs aligned with actual labour market demands?

8. Do you think trainers have enough say in identifying their own development needs during your collaborations?

Section D: Innovative CPD Approaches

9. Has your organization promoted or supported the use of innovative CPD approaches such as e-learning, mentorship, blended learning, or mobile training platforms?
10. Are there any sector-specific CPD programmes you have helped design (e.g., in agro-processing, construction, ICT, etc.)?
11. What is your perspective on micro-credentialing or modular certification for CPD?
12. Have you facilitated or supported industry attachments for trainers as part of their professional development?

Section E: Institutional Support & Collaboration

13. How would you describe the institutional capacity (infrastructure, leadership, funding) of the TVET colleges you have worked with to implement effective CPD?
14. What support (financial, technical, or advisory) has your organization provided to these institutions?
15. How well do you think institutions integrate CPD into their strategic priorities or daily operations?

Section F: Impact on Trainer Competence

16. In your experience, what changes or improvements have you observed in trainers' competences as a result of your CPD support?
17. Are there any success stories or innovations you have witnessed that could be scaled nationally?
18. What competency gaps still remain unaddressed, in your view?

Section G: Reflections and Recommendations

19. What are the key challenges you've encountered while supporting CPD for TVET trainers?
20. What recommendations would you offer to the MoES, institutions, and other stakeholders to strengthen CPD systems in Uganda?

Appendix V: FDG Guide for Institutional Management Staff

Target Group: Institutional Management Staff (Deputy Principals, HoDs, Registrars)
Purpose: To explore institutional perspectives on the current status, strategies, and innovations in CPD for TVET trainers.

Section A: Introductory Questions

1. Can you briefly describe your role in managing or supporting CPD activities at this institution?
2. How would you describe the overall commitment of your institution to the professional development of trainers?

Section B: Current CPD Practices

3. How regularly does your institution organize CPD activities for trainers?
4. In your view, how relevant are the CPD programmes offered to the trainers' technical fields?
5. Are CPD activities easily accessible to all trainers, including those in hard-to-reach areas?
6. What mechanisms are used to inform trainers in advance about upcoming CPD opportunities?
7. How does your institution ensure that CPD content reflects current industry or technological trends?
8. Is there any structured way in which trainers are expected or encouraged to share CPD knowledge with colleagues?

Section C: Strategies for Identifying Training Needs

9. What methods does your institution use to identify the professional development needs of trainers?
10. Is students' feedback regularly used to guide CPD planning?
11. To what extent are trainers involved in identifying their own training needs?
12. Do you consult industry stakeholders to align CPD content with market demands?

Section D: Adoptable Innovative CPD Approaches

13. Has your institution integrated digital or e-learning tools into its CPD strategy? If yes, how effective has it been?
14. Do you use blended learning, mentorships, or peer learning strategies in your CPD programmes?

15. Are there efforts to tailor CPD to specific trades or departments within your institution?
16. How flexible are CPD schedules to accommodate trainers' workloads?

Section E: Institutional Capacity and Support (Status of Institutions)

17. How would you describe the institutional infrastructure available to support CPD (e.g., ICT, training spaces, internet)?
18. Is there a dedicated budget for CPD at your institution? If yes, is it adequate?
19. How does management support and promote participation in CPD among trainers?
20. Would you say your institution's culture values continuous learning and professional growth? Why or why not?

Section F: Observed Impact on Trainer Competences

21. From your perspective, how has CPD influenced the competences of trainers at your institution?
22. Have you observed improvements in trainers' use of participatory methods, ICT, or innovative teaching techniques as a result of CPD?
23. What competences do you think are still lacking despite current CPD efforts

Section G: Final Reflections

24. What do you see as the biggest barriers to effective CPD implementation in your institution?
25. What recommendations would you make to strengthen CPD delivery and impact at your college?

Appendix VI: FGD Guide for MoES Staff

Target Group: Ministry of Education and Sports (MoES) – Staff from the Departments of:

- TVET Operations and Management (TVETOM)
- Health Education and Training
- Teacher Education Training and Development
- TVET Trainers, Research and Innovation

Purpose: To collect insights from MoES technical staff involved in the policy, planning, oversight, and implementation of CPD programmes for TVET trainers in Uganda.

Section A: Introductory Questions

1. Please briefly introduce your department and its role in supporting or coordinating CPD for TVET trainers.
2. How would you describe the current status of CPD implementation in Uganda's public instructor training institutions?

Section B: Current CPD Practices

3. How frequently are CPD programmes organized or facilitated at the national level for TVET trainers?
4. In your view, how aligned is the CPD content with current industry needs and technological trends?
5. Are the CPD programmes equitably accessible to trainers across different regions and institutions?
6. How do you evaluate the effectiveness of CPD programmes at the national level?
7. Is there national guidance or a framework that ensures trainers apply what they learn in CPD to their teaching?

Section C: Strategies for Identifying Training Needs

8. What national-level strategies or tools are used to identify the training needs of TVET trainers?
9. Is students' feedback used to inform CPD programming?
10. How are trainers themselves involved in articulating their own development needs?
11. Do you work with industry stakeholders to identify emerging skill gaps for trainers?
12. How regularly are these needs assessments conducted and updated?

Section D: Adoptable Innovative CPD Approaches

13. What innovative CPD approaches (e.g., e-learning, blended learning, mentorship) are being promoted by the MoES?
14. Is there a national strategy for integrating digital tools or modular learning into CPD delivery?
15. Are there initiatives to tailor CPD by trade or sector (e.g., construction, health, ICT)?
16. How does the MoES engage industry experts or practitioners in the design and delivery of CPD?
17. What is your view on micro-credentialing or stackable CPD certifications; has this been piloted or planned?

Section E: Status of Instructor Training Institutions

18. Based on your oversight role, how would you assess the capacity of instructor training institutions to effectively implement CPD? (infrastructure, staffing, digital readiness)
19. Are there clear policies or guidelines provided to these institutions regarding CPD implementation?
20. How does the MoES ensure institutional compliance or accountability for CPD delivery?
21. What financial or technical support is currently available for institutions to run CPD programmes?

Section F: Trainer Competences and CPD Impact

22. From a national perspective, what are the key competences CPD should strengthen in TVET trainers?
23. Have you observed improvements in trainer performance linked to recent CPD interventions?
24. What are the main competency gaps that persist despite ongoing CPD efforts?

Section G: Challenges and Recommendations

25. What are the biggest policy or operational challenges limiting the effectiveness of CPD for TVET trainers?
26. What recommendations would you propose to strengthen the national CPD framework and improve institutional implementation?

Appendix VII: FGD Guide for TVET Trainees

Introduction:

Thank you for joining this discussion. We want to hear about your experiences and perceptions of the training you receive, focusing on how your trainers develop their skills and how that affects your learning. Please be honest and speak openly, your answers will help improve TVET programmes.

Section 1: Trainers' Professional Development Practices

1. Have you noticed whether your trainers participate in any professional development activities such as workshops or training programmes?
2. Do the training activities your instructors attend seem relevant to the skills you need in your technical field?
3. Are the trainers able to share new knowledge or skills with you and other students after attending development programmes?
4. How often do you see your trainers using updated teaching methods or information that reflects current industry trends?

Section 2: Identifying Training Needs for Trainers

5. In your experience, do trainers receive feedback from students about how they teach or the skills they need to improve?
6. Are trainers involved in discussions or asked about the areas where they feel they need more training or development?
7. Do you think your trainers' skills match what the current job market demands?
8. Have you observed trainers adapting their teaching based on new technologies or changes in your industry?

Section 3: Innovative Approaches in Trainer Development

9. Do your trainers use digital tools like online resources or videos during lessons?
10. Have you experienced group activities or peer learning that your trainers organize to help you learn better?
11. Are practical, hands-on learning opportunities a regular part of your training sessions?
12. Have you noticed any new or creative methods your trainers use to make learning more engaging or effective?

Section 4: Institutional Support and Environment

13. Do your trainers have access to the necessary tools, equipment, and materials to deliver effective training?
14. How would you describe the support your trainers get from the institution for their professional growth?

15. Are you aware if your institution collaborates with industry partners to improve training quality?
16. Do your trainers regularly communicate the importance of staying updated in their field during class or other interactions?

Section 5: Trainers' Competences and Teaching Effectiveness

17. How well do your trainers organize and plan their lessons? Do the sessions feel well-structured?
18. Do your trainers explain technical information in a way that is easy to understand?
19. Do they involve you actively during lessons using discussions, group work, or other participatory methods?
20. How confident are you in the practical skills your trainers demonstrate during lessons?
21. Are you assessed in different ways that fairly evaluate your skills and knowledge?
22. Do your trainers provide useful feedback on your progress and performance?

Closing Question:

23. If you could suggest one way your trainers could improve their teaching or professional development, what would it be?

Appendix VIII: Informed Consent Form

Title of the Study:

Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda

Principal Investigator:
SEMPALA SABASTIAN

University of Eldoret, Department of Technology Education
Email: sempalasabastian@gmail.com
Phone: +256774256707

Introduction

You are invited to participate in a research study examining the current practices, challenges, and opportunities in the implementation of CPD for TVET trainers in Uganda. This form outlines the purpose of the study, your role, your rights as a participant, and how your data will be handled. Please read carefully and feel free to ask any questions before signing.

Purpose of the Study

The aim of this study is to explore how CPD is currently organized and experienced by trainers in Uganda's instructor training institutions. It also investigates strategies for identifying training needs and introduces innovative, adoptable approaches that could improve trainer competences and institutional practices.

Your Role

If you agree to take part, you will be asked to:

- Complete a questionnaire (for trainers)
- Participate in an interview or focus group discussion (for institutional managers, MoES officials, and education development partners)
- Allow access to relevant institutional documents (for document review)

Participation is entirely voluntary and will take approximately:

- **30–45 minutes** for the questionnaire
- **45–60 minutes** for interviews or focus group discussions

Risks and Benefits

There are no foreseeable physical or psychological risks associated with this study. While there may be no direct personal benefit, your input will help improve national CPD policies and practices, potentially benefiting TVET institutions and trainers across Uganda.

Confidentiality

Your identity and personal information will be kept strictly confidential. All responses will be anonymized using codes or pseudonyms. Data will be securely stored on password-protected devices and accessed only by the research team. Findings will be presented in aggregated form and will not contain any identifying information.

Voluntary Participation and Right to Withdraw

Your participation is completely voluntary. You may choose not to answer any question, and you may withdraw from the study at any time without penalty or loss of benefits.

Compensation

There is no monetary compensation for participation. However, refreshments may be provided during interviews or focus group discussions.

Consent Statement

By signing below, you confirm that:

- You have read and understood the purpose, procedures, risks, and rights explained above.
- You have had the opportunity to ask questions and receive satisfactory answers.
- You voluntarily agree to participate in this study.

Participant Name: _____
Signature: _____ Date: _____

Researcher Name: _____
Signature: _____ Date: _____

Appendix IX: Audio Recording Consent Form

Study Title:

Strategies for Enhancing Continuous Professional Development for TVET Master Trainers in Public Instructor Training Colleges in Uganda

Principal Investigator:
Sempala Sabastian
PhD Candidate, Technology Education (TVET Option)
University of Eldoret, Kenya

Statement of consent to be audiotaped

I understand that audio recordings will be taken during the study, and I am hereby consenting for my voice to be recorded by a member of the research team.

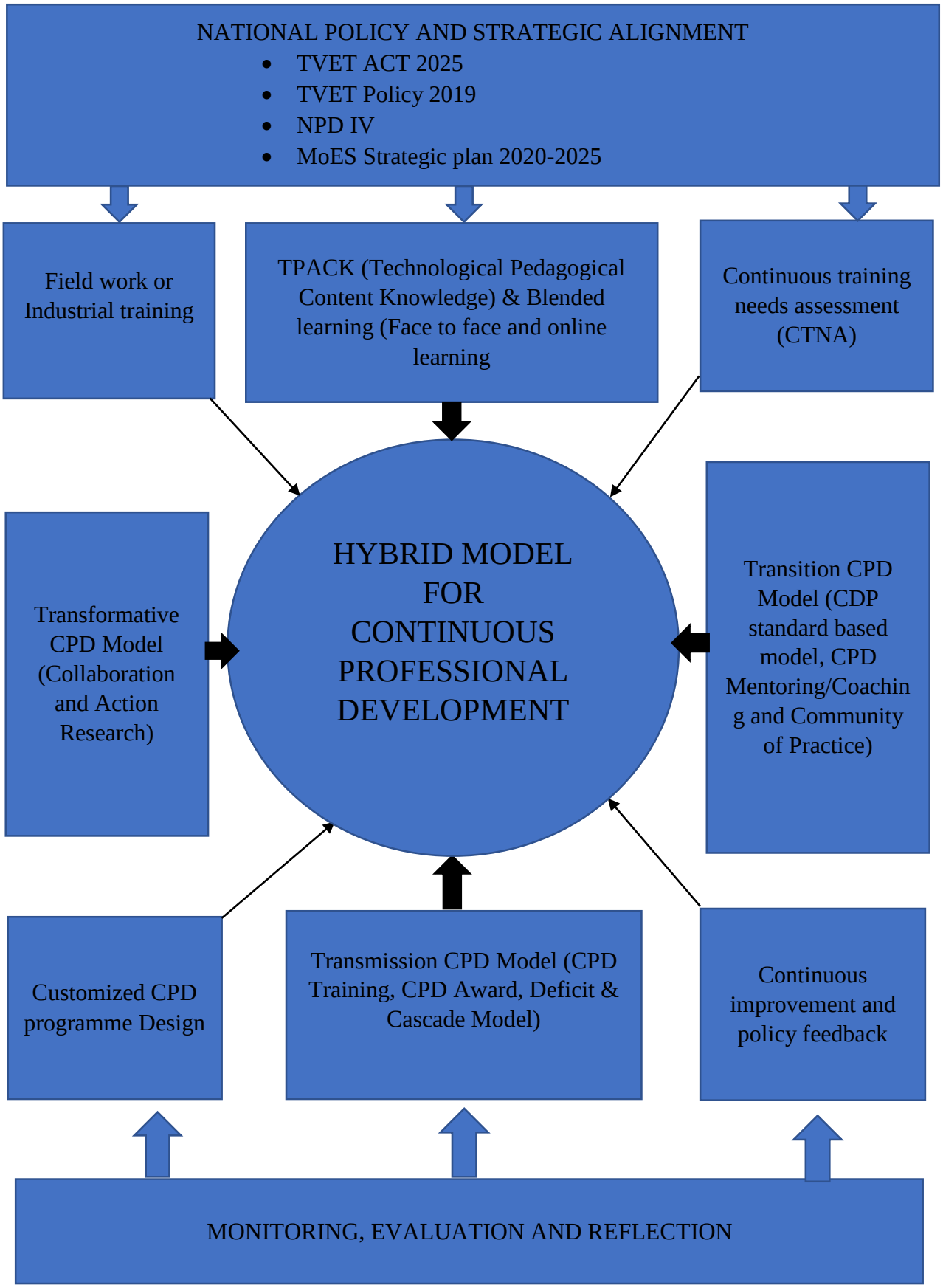
I agree to be audio-recorded **Yes** ☐ **No** ☐

_____	_____	_____
Name of Participant (please print)	Signature/thumbprint	Date

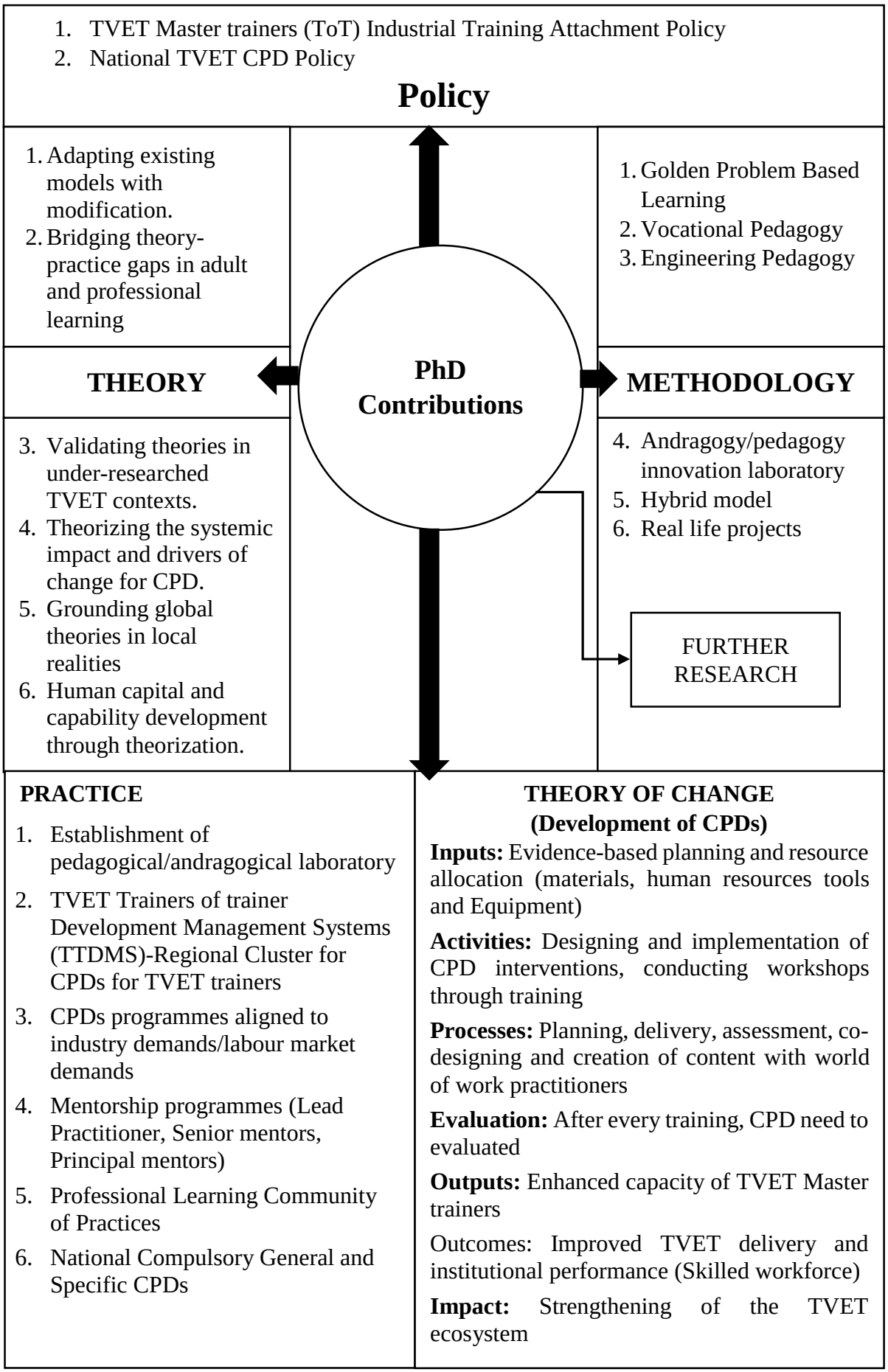
_____	_____	_____
Name of witness (please print)	Signature/thumbprint	Date

_____	_____	_____
Name of researcher Obtaining Consent	Signature	Date

Appendix X: Adapted hybrid CPD Model



Appendix XI: PhD Contributions



Appendix XII: Theory of Change

Inputs	Activities	Output	Outcomes	Impact
• Human resources (trainers, mentors, experts) • Instructional materials and tools • Policy frameworks and funding support • Industry partnerships • Digital platforms, internet, and library access • Training equipment and facilities	• Conduct training needs assessments (TNA) • Co-design and implement CPD programs (workshops, seminars, mentorships, online learning) • Deliver CPD modules on pedagogy, digital literacy, and technical skills • Attach trainers to industries for exposure and practical learning • Conduct action research and continuous evaluation • Collaborate with industry stakeholders to align curricula with labour market skills • Establish monitoring and evaluation systems • Provide incentives such as certification and career progression	• Certified trainers with updated technical and pedagogical competencies • Developed CPD frameworks aligned with national TVET standards • Modular training programs delivered across key competence areas • Strengthened partnerships between TVET institutions and industries • Functional accreditation and certification mechanisms for trainers	• Improved quality of teaching and instructional delivery • Increased participation of trainers in structured CPD programs • Stronger alignment of training content with labour market needs • Enhanced trainer motivation, professional satisfaction, and retention • Better learner engagement and improved learning outcomes	• Strengthened and modernized TVET sector • Increased employability of graduates • Sustainable national economic growth through a skilled workforce

External Influences and assumptions	• Supportive policy and regulatory environment • Continued government and institutional commitment • Adequate funding and resource availability • Active industry collaboration and willingness to share expertise

Appendix XIII: Uganda National Council for Science and Technology-Research Permit

Uganda National Council for Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Re: Research Approval: STRATEGIES FOR ENHANCING CONTINUOUS PROFESSIONAL DEVELOPMENT FOR TVET TRAINERS IN INSTRUCTOR TRAINING INSTITUTIONS IN UGANDA

I am pleased to inform you that on **12/09/2024**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **12/09/2024** to **12/09/2026**.

Your research registration number with the UNCST is **SS3179ES**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.

2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.

3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.

4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.

5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.

6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.

Please note that this approval includes all study related tools submitted as part of the application as shown below:

	Document Title	**Language**	**Version Number**
1	FGD Informant consent form	English	PDF
2	Informed consent form for survey	English	PDF
3	Informed consent form for Interview Protocol	English	PDF
4	Informed consent form for self-administered Questionnaire	English	PDF
5	Survey guide for trainees	English	PDF
6	Covid-19 Risk Management	English	PDF
7	Survey Guide	English	PDF
8	Consent form for Audio recording	English	PDF
9	Consent form for Video recording	English	PDF
10	Observation checklist	English	PDF
11	FGD Guide	English	PDF
12	Interview Protocol tool	English	PDF
13	Self-Administered Questionnaire	English	PDF
14	Project Proposal	English	PDF
15	Approval Letter	English	PDF
16	Administrative Clearance	English	PDF

Yours sincerely,

Hellen Opolot
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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WEBSITE: http://www.uncst.go.ug

Appendix XIV: Approval by Research Ethics Committee

GULU UNIVERSITY
P.O. Box 166, Gulu (U)
Website: www.gu.ac.ug
Email: gurec@gu.ac.ug
Tel: +256 471 432 096
Fax: +256 471 432 913
Mob: +256 772 964 491
+256 776 812 147
RESEARCH ETHICS COMMITTEE

16/08/2024

To: SABASTIAN SEMPALA

UNIVERSITY OF ELDORET KENYA
0774256707

Type: Initial Review

Re: GUREC-2024-872: STRATEGIES FOR ENHANCING CONTINUOUS PROFESSIONAL DEVELOPMENT FOR TVET TRAINERS IN INSTRUCTOR TRAINING INSTITUTIONS IN UGANDA

I am pleased to inform you that at the **114th** convened meeting on **21/06/2024**, the Gulu University REC meeting voted to approve the above referenced application.
Approval of the research is for the period of **16/08/2024** to **16/08/2025.**

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **16/08/2025** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Gulu University REC:

GULU UNIVERSITY
RESEARCH ETHICS COMMITTEE
APPROVED UNTIL
★ 16 AUG 2025 ★
FACULTY OF MEDICINE
P. O. Box 166, Gulu

No.	Document Title	Language	Version Number	Version Date
1	Revised Research Proposal	English	PDF	2024-08-13
2	Covid-19 Risk management plant	english	pdf	2024-08-07
3	INFORMED CONSENT FORM FOR INFORMANT INTERVIEW PROTOCOL	english	pdf	2024-08-07
4	INFORMED CONSENT FORM FOR SURVEY	english	pdf	2024-08-07
5	FGD CONSENT FORM	english	pdf	2024-08-07
6	INFORMED CONSENT FORM FOR SELF ADMINISTERED QUESTION	english	pdf	2024-08-07
7	Self Administered Questionnaire	English	PDF	2024-08-05
8	Video recording Consent form	English	PDF	2024-08-05
9	Observation checklist	English	PDF	2024-08-05
10	Survey	English	PDF	2024-08-05
11	FGD Guide	English	PDF	2024-08-05
12	Informant Interview Protocol	English	PDF	2024-08-05
13	Community Engagement plan	English	PDF	2024-08-05

GULU UNIVERSITY
RESEARCH ETHICS COMMITTEE
APPROVED UNTIL
16 AUG 2025
FACULTY OF MEDICINE
P. O. Box 166, Gulu

Yours Sincerely

Julaina A. Obika (PhD)
For: Gulu University REC

Appendix XV: University of Eldoret Introduction letter

University of Eldoret
Home of knowledge and innovation

P.O. Box 1125-30100
ELDORET, Kenya
Tel: 0774 249552
Fax No. +254-(0)53-2063111 Ext 2232

Our Ref: UOE/B/TED/PGR/061 DATE: 22nd April, 2024

The Director of Research and Ethics Committee,
Gulu University,
P. O. BOX 166,
LAROO DIVISION - GULU CITY, UGANDA

Dear Sir/Madam,

SUBJECT: SEMPALA SABASTIAN- SEDU/TED/P/005/22

This is to confirm that the above named PhD student has completed Course work of his PhD in Technology Education, TVET Option.

He is currently preparing for his field research work on his thesis entitled: ***"Strategies for Enhancing Continuous Professional Development for TVET Trainers in Instructor Training Institutions in Uganda"***. He successfully presented his proposal on 19th December, 2023 and has been approved by the university.

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

Yours faithfully,

HEAD
TECHNOLOGY EDUCATION
UNIVERSITY OF ELDORET

DR. ISAAC NANGENDO
HOD, TECHNOLOGY EDUCATION

Copy to: Dean, School of Education

Appendix XVI: Permission letter to conduct

0417 893 600 (General)
0417 893 602 (Permanent Secretary)
permasec@education.go.ug
www.education.go.ug
For any correspondence on this subject, please quote Ref No./12/U 14

The Republic of Uganda
Ministry of Education and Sports

Ministry of Education and Sports
P.O. Box 7063 Kampala, Uganda
Embassy House
King George VI Way

13th August 2024

Sabastian Sempala,
PhD Student,
University of Edoret, Kenya.

PERMISSION TO CONDUCT RESEARCH.

Reference is made to your letter dated 22nd July 2024 on the above subject requesting Ministry of Education and Sports for Permission to conduct research on the Thesis "***Strategies for Enhancing Continuous Professional Development for TVET Trainers in Instructor Training Institutions in Uganda.***"

The Ministry of Education and Sports is pleased to support your research endeveaurs and confident that your work will contribute significantly to the development of Uganda's Education sector.

The purpose of this letter, therefore, is to grant you permission to conduct your research at Directorate of Higher Technical Vocation and Training, Instructor training Institutions, Education Department Partners, World of work practitioners in TVET, National Instructors' College – Abilonino, Nakawa Vocational Training College, Jinja Vocational Training Institute, Ntinda Vocational Training Institute and Kyambogo University.

By copy of this letter, you are informed accordingly and advised to forward a copy of the final Thesis to the Ministry of Education and Sports, Department of Education Policy and Research (EPAR). For further clarification, contact; **Assistant Commissioner Research and Innovation, 0772440090, arwebanda@yahoo.co.uk.**

Brighton Barugahare
For: PERMANENT SECRETARY

Appendix XVII: Map of the study Area

Appendix XVIII: Similarity test

DrillBit

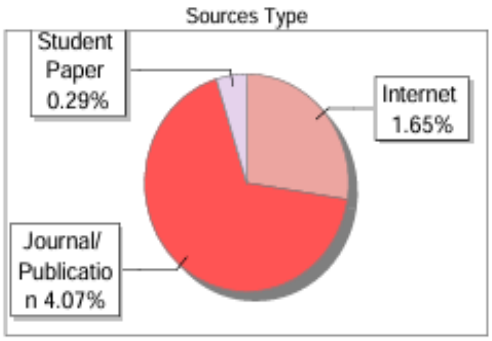
The Report is Generated by DrillBit Plagiarism Detection Software

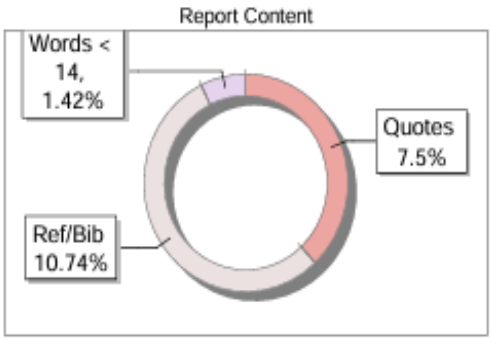
Submission Information

Author Name	Sempala Sabastian SEDU/TED/P/005/22
Title	STRATEGIES FOR ENHANCING CONTINUOUS PROFESSIONAL DEVELOPMENT FOR TVET MASTER TRAINERS IN PUBLIC INSTRUCTOR TRAINING COLLEGES IN UGANDA
Paper/Submission ID	4631755
Submitted by	similarity@uoeld.ac.ke
Submission Date	2025-11-06 09:20:03
Total Pages, Total Words	257, 76218
Document type	Dissertation

Result Information

Similarity 6 %





Exclude Information

Quotes	Not Excluded
References/Bibliography	Not Excluded
Source: Excluded < 14 Words	Not Excluded
Excluded Source	0 %
Excluded Phrases	Not Excluded

Database Selection

Language	English
Student Papers	Yes
Journals & publishers	Yes
Internet or Web	Yes
Institution Repository	Yes

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