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Experiencing online training and educational inequality in TVET delivery among trainers and trainees in Kenya during the COVID-19 pandemic: A case study

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ABSTRACT

During the COVID-19 pandemic, the switch to online training exposed the digital divide between higher education institutions, with some significantly superior to others in terms of equipment and experience, as well as among students enrolled in the same institution. The purpose of this study was to investigate online training and educational inequality in TVET (Technical and Vocational Education and Training) delivery in Kenya, during the COVID-19. A total of 16 unstructured discussions were conducted in four TVET institutions in the Western Kenya Region. Each college organized four conversations (two males only and two females only groups). The study took into account various reports and literature to provide the background and analyze the data to respond to the research questions. Additionally, the study collected data through desk reviews, unstructured conversations, reports, emails, WhatsApp messages, and phone calls that aid in situation analysis, utilizing a qualitative research methodology of situational analysis. Lack of experience with online training by trainers and trainees, along with inadequate training assistance, resulted in feelings of anxiety and unease. Trainees were frequently incapable of self-regulation and remained motivated to learn at home and they were unsure about the quality of the materials accessible to them. Recommendations on four major issues are given: providing complete support to trainees, trainers, and other institution personnel; improving remote and online training; ensuring policy certainty, implementation, and monitoring; and discovering and implementing effective interventions and innovations.

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KEYWORDS

COVID-19, online training, educational inequality, TVET delivery

INTRODUCTION

Due to the coronavirus pandemic (COVID-19), educational and training systems had to face serious disruptions which brought about a challenge to ensure learning to be continued (Batubara, 2021; Mercz-Madarassy, 2023). The global COVID-19 outbreak had an impact not only on our health, lives, and economies, but also on the labour market and educational sector, putting education institutions around the world to unprecedented test (Crawford et al., 2020). Besides the health repercussions and economic crises, there was a risk that the pandemic might erode hard-earned advances in education at all levels if timely action was not taken (UNESCO, 2020). COVID-19 impacted negatively on all educational and training institutions, and remedies were required given the condition of play and the ages of students (Asian Development Bank, 2021). According to a report by UNESCO in 2021, many countries took interim measures to stem the spread of COVID-19, including the shutdown of public facilities and schools (Azoulay, 2021). As an alternative solution, different types of online learning became the focus of attention, and trainers/trainees made an effort to ensure learning continuity. Some institutions and members of the TVET (Technical and Vocational Education and Training) community already had experiences with online learning strategies and thus they were able to provide immediate online solutions, while others were found in a situation where the learning phase was parallel with the training itself (Karani & Waiganjo, 2022).

After school closures, educational institutions scrambled to shift to remote education, quickly identifying solutions and learning modalities as well as establishing support for both students and teachers (Bozkurt et al., 2020). This was especially true in the case of TVET institutions where the assessment of practical skills was crucial and difficult to test online. In addition, TVET providers in most countries were not engaged in distance training earlier and were not prepared to do so (Hoftijzer, Levin, & Weber, 2021). Nevertheless, TVET providers had to find the technological opportunities and adapt quickly to these which could be supported by partnerships with managers, technology experts or telecommunication operators. While most governments provided quick support and established or strengthened national e-learning platforms, in less developed countries, the technological capacities were challenged to keep learning continuity using distant teaching and learning e.g., due to unreliability of stable Internet connection or the lack of electronic devices (Ferri, Grifoni, & Guzzo, 2020).

A survey of TVET providers in 40 countries including China, India, the United Arab Emirates and Saudi Arabia among others undertaken by Asian Development Bank (2021), ILO (2020), UNESCO (2020) indicated that on the 15th of May 2020, approximately 90% of the countries reported the entire shutdown of TVET institutions and centres as a response to the spread of COVID-19 (ILO-UNESCO-WBG, 2020). While academic education saw a general shift to online delivery, TVET delivery via online modalities posed a significant difficulty. Not surprisingly, respondents from several countries, including Kenya, reported that they continued providing practical training face-to-face with social distancing and protective clothing in place (ILO-UNESCO-WBG, 2020).

In many countries, most TVET trainers did not feel ready for the new educational systems, for example, in the Caribbean region, particularly in the field of several competencies like digital resilience or understanding cyber risks (Ferdinand-James, 2021). In a TVET Caribbean context, a survey of National Training Agencies reported that 53% of respondents said their universities did not use any type of ICT to deliver distance education and 47% stated only moderate use (Ndahi, 2020). However, the adoption of e-learning technology and emergency remote teaching proved a critical factor in vocational training institutions in developed countries as well, e.g., in Germany or the US (Jaggars, 2021). In Indonesia, the trainees' attitudes towards TVET education in the context of online training were mixed: although their teachers provided motivation and ease in their learning, this type of learning helped less with mastering their competencies as expected (Syauqi, Munadi, & Triyono, 2020).

The example of Bangladesh draws our attention to social inequalities in education. According to Bangladesh TVET Sector (2020), remote learning through online platforms further enhanced the existing inequity due to restricted internet access and it was particularly inequitable in the context of gender and socio-economic status. Since practical skills development often requires hands-on training in institutions workshops and laboratories, the introduction of distance learning was a great disadvantage (Bangladesh TVET Sector, 2020). In addition, students at home may lack the necessary equipment and materials needed for practical jobs. Thus, in this field, remote learning can only be a weak substitute for practical exercises in TVET (Bangladesh TVET Sector, 2020).

On a similar note in Sri Lanka, TVET institutions faced many challenges while initiating or expanding online training delivery during the Covid-19 (Hayashi, Garcia, Jayasundara, Balasuriya, & Hirokawa, 2021). For example, for TVET instructors and students stable access to the Internet was often not available, and some of them did not have the appropriate hardware devices. They also had difficulties with the online delivery of practical hands-on training. TVET instructors often use social media platforms to send lecture notes and assignments to their students (Hayashi et al., 2021). The use of online collaboration technology tools (e.g., Zoom) was more developed during the lockdown in higher education as compared to TVET institutions.

In Sub-Saharan African Countries (SSAC), during the pandemic, staff and all the personnel of the academic institutions had to face adverse consequences of the pandemic, particularly due to the prolonged school shutdowns (Agyapong, Asare, Essah, Heady, & Munday, 2020). It is estimated that 1,650 tertiary institutions closed and around 8.4 million students ended or disrupted their studies. All these contributed to widespread socioeconomic and digital inequalities (Agyapong et al., 2020).

Kenya's diverse technical education landscape

The Kenyan education system comprises various levels, including primary, secondary, and tertiary education. Within tertiary education, Technical and Vocational Education and Trainings (TVET) play a crucial role in equipping students with practical skills and competencies for employment and entrepreneurship. Technical and Vocational Education and Training (TVET) in Kenya is an integral part of the education system, aiming to provide practical skills and knowledge for various industries (Osumbah & Wekesa, 2023). The historical development of TVET in Kenya can be traced back to the pre-colonial period when non-formal and informal vocational training was demand-driven and flexible. However, during the colonial period, formal TVET was introduced and managed to suit the aspirations of missionaries and

colonialists, leading to a negative attitude towards it among Kenyan natives (Oroni, Manasi, & Wepukhulu, 2023a). Despite this negativity, the government recognized the importance of TVET for industrialization and addressing youth unemployment (Oroni, Manasi, & Wepukhulu, 2023b). Over the years, there have been efforts to enhance the pedagogical competence of TVET trainers, including effective communication with trainees and the use of practical examples to explain concepts (Maina & Muathe, 2023). However, challenges such as inadequate training materials and equipment, delays in providing feedback to trainees, and low motivation among trainers still exist (Mackatiani & Ejore, 2023). To improve the quality of TVET, it is recommended to enhance trainers' pedagogical competence, increase government funding for TVET institutions, and establish quality assurance offices. Kenya's commitment to diversifying its Technical and Vocational Education and Training (TVET) programs is a transformative approach that significantly influences the identity development of students (Ferm, 2021; Mackay, 2017; Osabwa, Ogeno, & Nyanje, 2022).

Educational inequality during the pandemic

Because of the abrupt March 2020 school shutdowns, the Education Ministry shifted to remote and online training. The pandemic resulted in lockdowns and school shutdowns and broadened the already-existing inequalities in society and the educational sector (Parker, Morris, & Hofmeyr, 2020). The pandemic influenced negatively the feeding programs of the educational sector, e.g., TVET institutions, and it was estimated by economists that 4 million more people languish below the poverty line in terms of food or severe poverty (Bassier, Budelender, Leibbrandt, Ranchhod, & Zizzamia, 2020; Parker et al., 2020). As it was projected, in the absence of a focused intervention for at-risk households, their rate of extreme poverty will nearly triple; the state feeding program's interruption has a substantial impact on hunger levels as well, during the closings of schools (Bassier et al., 2020). Lunch served at school is frequently many students from low-income families' only meal of the day and children suffering from hunger and malnutrition faced challenges during study in school and had weakened immune systems throughout the pandemic (Parker et al., 2020).

The National Bureau of Statistics of Kenya (2019) reported 47.6 million people as of the Census of Population and Housing in Kenya, 2019. With 36% of the population living in cities, compared to roughly two-thirds of the people residing in rural areas, 73% of urban households have access to electricity, as opposed to the significantly lower 17% for rural households (Ndung'u, Lewis, & Mothobi, 2019). When it comes to having access to ICT products, some 48% of people watch television, compared to 79% who listen to the radio. The urban-rural difference is very clear, especially noticeable when it comes to television watching, which is 34% for people living in rural areas against 73% for city dwellers. According to statistics, 79% of people in town centres and 62% in rural use mobile phones. There is a clear urban-rural difference and a sharp decline in the use of more advanced ICTs, with 10% of rural residents utilizing computers and only 17% having internet connectivity (Ndung'u et al., 2019).

Participation in digital commerce is restricted by poverty and high rates of illiteracy (Lysenko et al., 2019). Nganga and Mbithi (2020) estimated that 36% of Kenyan household figures are under the poverty line, making it impossible for them to pay for the internet connection needed for online training. Due to communication problems and limited access to information, over 38.5% of adult Kenyans lack literacy. For instance, the inability to read can make it difficult to take advantage of the accessibility of data (for instance, it is challenging

if you are unable to read, you can't benefit from SMS alerts.) or acquire information on digital investment opportunities (Nganga & Mbithi, 2020). Therefore, it is critical to increase education, capacity building, and citizen understanding of the importance of the data contained in digital alerts.

The government of Kenya has created a three-pronged strategy in the area of education to support continuing education online while adhering to national and international recommendations for social seclusion, quarantine, and isolation (Areba, 2020). To ensure that students in the nation continue to learn while staying at home, the Education Ministry created online content that some students could access through a variety of means; however, there were many difficulties with these projects (MoE, 2020; Oteno & Taddese, 2020). In addition, Schools often played a significant part in the protection of students in poor environments, and vulnerable and marginalized communities; with the lockdown, this protection was no longer available which contributed to increasing social inequalities (Areba, 2020).

Lack of personal interaction with teachers during content delivery proved one of the main effects of COVID-19 on students (Gichuhi, 2023). This was due to the Ministry of Health's (MoH) social distance laws, which were temporarily replaced with digital learning to reduce the rapid spread of the virus. Moreover, according to Areba (2020), rural students and people from disadvantaged backgrounds lacked access to essential technology or quick, trustworthy internet accessibility. Inadequate technology access or dependable internet connection is a barrier to lifelong training, mainly for students from disadvantaged backgrounds. 89% of trainees in Sub-Saharan Africa have limited access to laptops or computers, and 82% lack internet connections (Areba, 2020). In a UNESCO report, according to Abidjan (2020), 56 million students lived in areas without access to mobile networks during the COVID-19 pandemic and in Kenya after schools were closed, just a small portion of the country's 17 million students most of whom live in metropolitan areas can access digital devices, while those in the villages are not able to. For students, the situation is far worse in special education who receive no support at all. As a reaction to the COVID-19 pandemic-initiated shutdown of institutions, UNESCO advised using open education resources, distance learning platforms, and other platforms to connect with students remotely and reduce disruptions to learning (UNESCO, 2020).

Additionally, the Kenyan Ministry of Education (MoE) notes that the marginalized students' uneven access to educational resources, particularly digital resources, was crucial (Areba, 2020). Therefore, for the benefit of learners from marginalized and disadvantaged groups, the MoE offered the policy rules for adoption listed below, although they have not yet been implemented. (i) using ICTs to increase students' access to high-quality education, especially among the most vulnerable and underserved groups. (ii) providing the right ICT infrastructure can help solve issues with fairness, accessibility, and education quality for the most vulnerable and underserved students. (iii) the use of ICT to encourage alternative delivery methods to reach the weak and excluded students. (iv) increased ICT infrastructure affordability through bargaining with service providers for reduced fees for educational institutions.

Objective of the study

The aim of this theoretical and qualitative study was

i) to investigate the experience of trainers in online training and educational inequality in TVET delivery among trainers and trainees in Kenya during the COVID-19 pandemic.

ii) to investigate the experience of trainees in online training and educational inequality in TVET delivery among trainers and trainees in Kenya during the COVID-19 pandemic.
iii) to find out the level of TVET institutions' preparedness for TVET delivery amid the COVID-19 pandemic in Kenya.

METHODOLOGY

This study is based on a qualitative case study designed to examine trainers' and trainees' experiences during COVID-19. The case study would help educators and policymakers better understand the context and the reality faced by students and teachers in Kenya and elsewhere. The study employed a situational analysis in qualitative research methodology (Clarke, 2005; Clarke, Friese, & Washburn, 2015) which defines situational analysis as a research methodology using the circumstance as a whole as the analytical unit situational analysis can be utilized to generate a detailed examination of discourses, texts, and "symbolisms of the nonhuman" (Clarke, 2005). Situational analysis is an approach aiming to reveal marginalized viewpoints and subjugated knowledge; empirically decenter "the knowing subject" and demonstrate the complexity of social conditions as they develop, and become more stable, establishing patterns and locations (Clarke, 2005; Clarke, Friese, & Washburn, 2015). A total of 16 unstructured discussions were conducted in four TVET institutions in the Western Kenya Region. The study was carried out in the Technical Training Institutes of Western Region, Kenya which covers the Counties of Siaya, Kisumu, HomaBay, Migori, Kisii, Busia, Bungoma, Kakamega, Vihiga and Nyamira with a combined total of 15 Technical Training Institutes. Western Kenya region was chosen for several reasons: first, the Institutes are well developed to offer technical courses. The four institutions indicated in the study were selected purposively for data collection. Each college organized four conversations (two 'males only' and two 'females only' groups). The study took into account various reports and literature to provide the background and analyze the data to respond to the research questions. Additionally, the study collected data through desk reviews, unstructured conversations, reports, emails, WhatsApp messages, and phone calls that aid in situation analysis.

FINDINGS AND DISCUSSION

Trainers' experience with TVET delivery during the COVID-19 pandemic

All TVET institutions were urged to continue training and studying through a variety of relevant online learning platforms. Furthermore, theoretical education in the TVET program is limited to roughly 30–50% with the remainder requiring demonstration, hands-on skills, and observation of equipment use. In the responses of trainers and trainees from emails, WhatsApp and phone calls a few of the trainers remained in touch with trainees or parents, but one said that a handful of trainees could be contacted:

> *"Since many of the trainees lacked smartphones and frequently left their phones off, I was unable to speak with a large number of them last year."* (Trainer 4)

These sentiments revealed that some trainees were not able to take part in the online training due to lack of smartphones or laptops which showed a serious inequality among the trainees.

This experience was in tandem with Odondi, Mukiria and Wawira (2022) who revealed that 50.4% of TVET colleges did not reach out to their trainees in any way since the schools closed. The study added that 49.6% of the TVET institutions had attempted to reach their trainees remotely, less than 20% of the TVET trainers could facilitate online training, and only 7% of the TVET institutions had online portals to facilitate training. The cost of internet, electricity connectivity, and a shortage of gadgets hampered many of the trainees. Out of the 49.6% of institutions who reached out to their trainees, 36% reached out to them through online classes by Google Hangouts, Skype, Adobe Connect, Microsoft Teams, and a few other options available. ZOOM came out on top agreeing with Saxena (2020).

Moreover, trainers advised some trainees to assist their peers who did not have smartphones or computers to deal with this issue. This method allowed trainers to stay in touch with all of their trainees. The inexperience with using online learning systems was also a concern. In their online classrooms, trainers and trainees occasionally found it difficult to send files or documents, set deadlines, check for student presence, submit tasks, and archive trainees' work. Therefore, some trainers decided to use more user-friendly programs like WhatsApp. Furthermore, simpler applications consumed less internet data. However, as one trainer confirmed:

> *"Since my institution is located in a remote place and the trainees are not accustomed to online training, there were numerous challenges during the course. Others don't even have smartphones or computers."* (Trainer 2)

This expression revealed that occasionally, technical issues such as a bad internet connection, lack of computers, PCs, laptops, or smartphones, lack of abilities for administering online training, and a costly internet quota create hurdles for holding online training. However, many trainers when contacted declared that neither the institution nor the department supported or aided with these expenses. This concurs with Anyonje, Mandillah, Buhere and Wanjala (2022) who acknowledged that the main difficulties were related to internet connectivity, cost, and accessibility of the online platforms. Additionally, it was discovered that not all online platforms supported online practicals. This is also consistent with Rapanta, Botturi, Goodyear, Guàrdia and Koole (2020), who notes in his study that it is very difficult to use e-assessment to improve student learning and demonstrate learning results. Other obstacles according to (Rapanta et al., 2020) included a lack of supplies, interrupted internet service, improper engagement with students, difficulties in administering and grading online tests, and inadequate staff and student training.

However, some of the trainers contacted said that they were able to continue training online and remained in touch with trainees through WhatsApp, frequently in conjunction with other platforms or emails. A small number of trainers were able to send trainees work through WhatsApp and used Moodle to train. Trainers claimed that they used a variety of resources from WhatsApp to online platforms like Moodle and Zoom. Moreover, a trainer at one of the institutions indicated that they had not yet begun their online training since they had not yet been facilitated on the data bundles.

> *"This is a difficult moment for me to begin online instruction because I have not been provided with some bundles."* (Trainer 1)

Concerns were also voiced by trainers who highlighted the obstacles they faced in their training, including a lack of financial support, expensive data plans and limited internet connection, psychological obstacles, stress, or feeling overburdened, trainees' internet connection, the

stress of being unfamiliar with online training, parents' inability to support trainees appropriately because they could not read, etc. Andiema and Dietz (2023) concurred with the concerns that most trainers said that they could not follow up with their trainees and due to this, many of them did not return when the institution reopened in January 2021. A small number believed that it was their duty to check on their trainees' progress but due to limitations on movement, many of them could not do a follow-up. Trainers reported that some trainees resorted to what they referred to as "social evil acts": alcoholism, drug addiction, and other substance usage during the pandemic. Trainers did not have the infrastructure or skills necessary to conduct virtual classes, therefore they were unable to offer a virtual way of learning, and that training did not take place (Andiema & Dietz, 2023). To meet the training demands of all trainees in their institutions, the majority of trainers had to begin their training utilizing blended learning methods, which was a daunting experience for many of them.

The difficulties of implementing online learning also included issues with trainees. The impediments to successful online learning were unfavourable living conditions and assisting parents with their jobs. Trainers indicated that some trainees' distractions from unfavourable home situations were an issue. When trainees first begin online studying, several noises may start to surface, occasionally the trainees' brother or sister activities divert their attention. Meanwhile, a trainer who worked in a rural location claimed that several of her trainees had recently sent homework late due to spending the entire day working for their parents on farms. This occurred as a result of their remote location and the low level of study awareness there. Flexible training and assessments would be good for dealing with unanticipated situations in the pandemic time, thus the trainers allowed their trainees extra time to submit tasks to address these obstacles. This tactic worked well for dealing with trainees in challenging learning environments. As confirmed by one trainer;

> *"Siblings or brothers may interfere with trainees' ability to concentrate or focus while they are studying at home."* (Trainer 4)

In addition, trainers planned their lesson plans and online tests several days ahead of time. This is in tandem with the findings of Nugroho and Mutiaraningrum (2020) and Nugroho, Ilmiani, and Rekha (2020): both claimed that creating the training materials for online training takes a lot of time. In addition, trainers' inexperience with using online training systems, such as transferring files and papers, setting deadlines, monitoring trainees' attendance, submitting tasks and preserving trainees' work, presents another significant issue (Sun, Zou, Li, & Luo, 2021).

Trainees' experience with TVET delivery during the COVID-19 pandemic

When questioned whether the trainers were able to give work online while at home, the majority of trainees said "no," citing a lack of smartphones and data to log into emails and WhatsApp, as well as the assumption that training would resume after the pandemic. One of the trainees expressed the following:

> *"Having an online class during a pandemic is quite tough; not every family is fortunate enough to have a safe shelter, a smartphone or a laptop, and an internet connection."* (Trainee 3)

This expression revealed that trainees came from different backgrounds and different environments, and this brought about inequality between the poor and the rich, and those in rural

and urban setups. This concurred with another study in Malaysia (Yeap, Suhaimi, & Nasir, 2021). The authors noted that inadequate infrastructural resources, the stigma associated with TVET education, a lack of trainer competency, and lack of trainee motivation and career counselling were all issues that have occurred throughout time in TVET education, while poor internet connectivity, training environment, assessment and curricular content, trainers' and trainees level of readiness for e-learning have been discussed as issues with TVET instruction during the COVID-19 pandemic.

One trainer expressed that they had merely planned for a one-month loss of training in total during the pandemic. Another one stated that due to the lack of data by parents, they were unable to communicate or send training materials using the Internet. Interactions between participants course materials and trainers were not always easy. When the learning materials' complexity level exceeded the trainees' ability, some simply chose to not seek feedback, indicating their preference for nonadaptive help-seeking:

> *"I needed help at times, but I rarely asked for it. I had no idea how to pose queries. If I don't get the principles. And there were no face-to-face possibilities for criticism. This might make matters worse."* (Trainee 2)

The sentiments revealed that trainees were experiencing a lot of difficulty while studying online due to the pandemic, learning materials and contents were somehow difficult for them but they chose not to seek feedback from trainers because they did not know how to ask questions or to use the online system. According to Saxena (2020) in a study done in India, the trainees had a contrary experience that the online trainings were not different from the face-to-face ones. However, others believed that to stay in touch with the faculty throughout the session, trainees would need to exercise more self-discipline and give themselves more time to get used to taking classes online. Compared to the traditional technique, several students considered the online system to be more interactive. Many students believe that online learning gives them more control because they may view the knowledge on their computers and smartphones instead of hearing it read aloud or on a screen in class. They were less likely to be distracted while learning because they were seated in the comfort of their own home, which also improved their focus. However, a lot of students persisted in griping about the connectivity and speed of the internet, which negatively impacted their experience with online learning.

Even with these difficulties, the trainees recognized that transferring their learning and feedback practices online was essential in tough circumstances. Trainees were able to think deeply about the topic from several viewpoints and understand the hardships of their trainers and colleagues:

> *"Dealing with a large number of trainees in an online class is a very big challenge because it becomes too difficult to control that big number. I do believe that if the trainees were less than ten, the trainer would be able to control, interact and give feedback promptly to each of them."* (Trainee 4)

It is revealed that trainers were in serious difficulty in controlling big classes of close to 50 trainees or even more, even if they had a dependable internet connection, controlling the learning process in such a situation was still a challenge to the trainers. Giving feedback to the trainees was a problem because not all wanted to concentrate in class. Most of them even came from regions with low internet connectivity and electricity might not be available in their

homes. This concurs with the study of Cullinan, Flannery, Harold, Lyons, and Palcic (2021) which revealed that roughly 17% of trainees in Ireland came from regions with limited access to broadband, a figure that is in line with the percentage of students who said having dependable Wi-Fi was a problem in the spring of 2020. For instance, more than 25% of trainees in some universities are from places with poor broadband access. Additionally, the data demonstrates that trainees who experience the largest broadband service limitations are more likely to experience socioeconomic adversity.

Responsibilities imposed on trainers when transitioning to online training during the COVID-19 pandemic

When it comes to the added responsibilities of trainers when transitioning to online training in Kenya, it shares the same view of other TVET institutions throughout the world that provide practical training and assessment where the theory training was moved online while the practical training was postponed until in-person training could resume (Hume & Griffin, 2022).

Among the key obstacles confronted by these institutions while changing to online training were issues related to student involvement and greater strain on trainers. Trainers discovered that they needed to provide extra support to many students outside of typical training hours, among others, WhatsApp, Facebook messenger or email assistance with questions on training materials and contents, as well as technological troubleshooting assistance and follow-up with students who had missed online training. When in-school training started, trainers were usually compelled to deliver additional sessions due to social distance rules demanding smaller class sizes, one trainer recognized this as a problem;

> *"A major burden on trainers, as class size must be reduced to adopt COVID-safe processes"* (Trainer 4)

This expression confirmed that trainers needed to commit to learning new skills and upgrading to learn how to apply new applications and software required for online training, due to the additional time required from them to help students online. On a similar note, Turnbull, Chugh, and Luck (2021) added that to work around constraints on face-to-face training, institutions have accelerated their shift to online training, with far-reaching effects for both trainees and trainers. This transformation has been aided by the incorporation of online technologies such as Zoom and Moodle into course delivery systems, which has led to adjustments in traditional in-school pedagogical practices to accommodate online training for various knowledge domains.

However, trainers were initially trained on how to apply programs such as Zoom and Microsoft Teams. The quality of training offered by the institution differed, with some instruction limited to the fundamentals of how to apply these programs, while some received more comprehensive training on tactics to engage trainees, training well online, and online class management. One trainer acknowledged that introducing online training meant testing the trainees' level of understanding and literacy with technology:

> *"Some trainees may read for significance, and others read for entertainment. If there are any undiscovered literacy gaps, they are beginning to develop and grow more visible when using the internet"* (Trainer 3)

The sentiments were echoed by Fredricks, Blumenfeld, and Paris (2004) that there are three types of learner engagement: behavioural engagement, or involvement; emotional engagement,

which reflects feelings towards teachers, classmates, and the learning environment and drives motivation; and cognitive engagement, or commitment to participate.

TVET institutions' preparedness on TVET delivery amid the COVID-19 pandemic

During the pandemic, TVET institutions were advised to perform their training online. TVET institutes' ability to implement online training was based on their capacity to modify curricula and the preparedness in infrastructures such as internet access, devices or media, training platforms, and online trainers (UNESCO-UNEVOC International Centre, 2020; Yeap et al., 2021). Before implementing online training, TVET institutions were forced to update their management, training and learning models, and evaluation structures; courses or subjects that did not require practical activities could more easily transition to online training (Yeap et al., 2021). For instance, compared to vehicle repair classes that involve hands-on practice, social work courses or business management courses were comparatively simple to do online (Kourgiantakis & Lee, 2020).

Regarding the TVET training curriculum, migrating to remote and online training was difficult since TVET majorly dealt with training on practical skills and job preparation; practical skills obtained through practical experience at the workplace or by learning by doing in the classroom and or workshops. Practical tasks require the use of specialized equipment or materials, making online training approaches a poor substitute for face-to-face training (Ibrahim, Khan, Shah, Baker, & Alsheikh, 2022). Majumdar and Araiztegui (2020) noted that because of the extremely practical aspect of TVET, online training was only beneficial for theoretical courses and topics; however, the practical component of TVET required additional solutions. This scenario worsened when numerous trainees were forced to leave their jobs and institutions, either temporarily or permanently, and when many enterprises shut down owing to the inability to cover the costs and due to the pandemic requirement of social distancing. Most of the TVET institutions were not ready for online training during the pandemic and this broadened the inequality between online training and TVET delivery.

CONCLUSION

These findings support the need to draw a lesson during the period of COVID-19 and its impact on education/learning in connection with the crisis management of the given period. As a result, the growing number of publications elaborated in recent years helps our understanding of advantages and drawbacks of distant learning. Although online training in TVET delivery cannot provide the optimal method of teaching and in most places a return to traditional methods has been evident, particularly in Kenya, where social and digital inequalities are still evident, certain changes are in progress to avoid uncertainties in the future with a possible new crisis. Obviously, vocational education and training may be affected by similar crises. While these programs may suffer a double disadvantage during social distancing, it can also provide an opportunity to innovate from experiential virtual training across countries and improve digital literacy of both trainers and trainees. We should also note here that questions brought up here are not specific to Kenya or other African countries but also to TVET institutions in more developed countries, like Hungary as well.

Based on the literature and findings from our qualitative case study, the crucial implication is that due to the major technological limitations that many trainees experience, TVET institutions may need to a large extent change their online training techniques. The results also suggest that different trainee groups within each institution might need several options or have varying access skills to online content. It is advised that institutions should take note of the location distribution of their enrolments and take into account how to modify their training or teachings to address these possible limits as these restrictions are generally based on spatial variables. In this context, it might also be important to make sure that training professionals make an effort to determine the connectedness of their students before choosing a delivery technique, if practical.

The trainers had to modify their lesson planning and procedures to ensure that they comply with Ministry of Health requirements as new training methodologies emerged starting in the year 2021. The majority of trainers and trainees, however, found themselves in a challenging situation when attempting to carry out their classroom obligations because their institutions were not adequately equipped to support instructional activities.

Lack of training support, combined with trainers' and trainees' insufficient prior experience with online training, led to increased emotions of fear and unease. Additionally, it is concluded that trainees frequently lacked the self-control and motivation to continue their education at home, and they lacked confidence in the calibre of the resources at their disposal. Individuals who reported having limited or no access to online learning materials demonstrated student inequity. Others claimed that when they had a limited amount of data bundles, the quantity and variety of online resources left them feeling overwhelmed.

Preparing teachers and students of TVET institutions for the online training culture during the COVID-19 pandemic requires several steps. TVET institutions should organize workshops and training sessions for teachers to familiarize them with online teaching tools and platforms, covering topics such as navigating online learning management systems, creating engaging online content, and using interactive tools for virtual classrooms (Razak, Noordin, & Khanan, 2022; Santoso, Luhsasi, & Sadjiarto, 2023). Teachers should receive training on effective online teaching methodologies and pedagogies, including strategies for facilitating discussions, promoting active learning, and providing constructive feedback in the online environment (Holik, Kersánszki, Molnár, & Sanda, 2023; Yeap et al., 2021). Emphasis should also be placed on adapting teaching techniques to suit the online format while maintaining the quality of education delivery (Oltean, 2023).

TVET institutions should establish technical support services to assist both teachers and students with any technological issues they encounter during online training. This could involve providing troubleshooting guides, setting up help desks, and offering online tutorials on using specific software or tools (Aslam & Sonkar, 2021). Recognizing that not all students may have access to reliable internet connectivity or appropriate devices for online learning, TVET institutions should explore ways to bridge this digital divide. This may involve providing students with access to loaner devices, subsidizing internet costs, or creating designated study spaces with internet access on campus (Chiu, Cheng, Meng, & Wei, 2023).

TVET institutions should review and adapt their curriculum to suit the online learning environment. This may involve restructuring courses to include more asynchronous learning activities, integrating multimedia resources, and incorporating real-world applications of concepts through virtual simulations or projects (Zhou, Smith, & Al-Samarraie, 2023). Before

transitioning to online learning, TVET institutions should conduct orientation programs for students to familiarize them with the online training culture (Bernátová, Bernát, Poráčová, Rudolf, & Kľučarová, 2023). These programs can cover topics such as navigating online platforms, accessing course materials, participating in virtual discussions, and managing time effectively in an online learning environment (Jarrah, 2023).

Establishing clear channels of communication between teachers and students is essential for effective online learning (Ngure, 2022). TVET institutions should encourage regular communication through emails, discussion forums, or virtual office hours (Koh & Daniel, 2022). Additionally, providing students with timely feedback on their progress and performance can help them stay motivated and engaged in their studies (Ngure, 2022). Encouraging students to take ownership of their learning journey is critical in an online training culture (Masina & Mawonedzo, 2022). TVET institutions should promote self-directed learning by providing resources for independent study, encouraging peer collaboration, and fostering a growth mindset among students (Khoza, 2022). By implementing these strategies, TVET institutions can effectively prepare teachers and students for the online training culture amidst the challenges posed by the COVID-19 pandemic. This proactive approach will not only ensure continuity of education but also empower both teachers and students to thrive in the digital learning environment.

For future interventions, several recommendations should be taken into account to prepare both TVET trainers and trainees for possible online training. These recommendations provide strength on four key areas that demand immediate attention and significant effort, including a) providing thorough assistance for trainees, trainers, and other institution staff: b) enhancing online and distance learning; c) ensuring the implementation, monitoring, and certainty of policy; and d) locating/using promising treatments and potential innovations to serve as the cornerstone for achieving the long-term objective of equitable, high-quality training for all participants.

- There should be enough printed resources (workbooks, textbooks, and readers) created to accommodate all students. The learners without access to alternative training resources and the regions with the worst shortages of these materials should receive priority.
- The government should immediately arrange for trainers to receive training in successful remote and online training by utilizing a hybrid approach to teaching.
- During this pandemic and in the future, all trainees need to be taught how to study efficiently through distant means.
- Trainers, students, and the parents or guardians in charge of watching over students all require technical support for online training;
- For direct assistance to trainees' a toll-free number can be used to ask inquiries concerning the course's topics and material so that trainees can get in touch with knowledgeable, experienced trainers for guidance and inquiries.
- Finally, trainers, trainees and guardians should be inspired to start their support groups on social media, with chat programs like WhatsApp, and with online video conferencing programs like Zoom.

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was voluntary and anonymous, and informed consent was obtained. The study was conducted in accordance with the Declaration of Helsinki.

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