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Bridging Gaps in TVET for Learners with Disabilities: Proposed Mental Health, Technology, and Gender Equity Interventions in Coastal Kenya

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Abstract: Learners with disabilities in Technical and Vocational Education and Training (TVET) institutions in Coastal Kenya continue to face multiple challenges that hinder their full participation in learning in order to achieve sustainable development. These include unmet mental health needs, limited access to assistive and digital technologies, and deep-rooted gender inequities. Despite the international and national efforts to inclusive and equitable education, the integration of mental health, technology, and gender remains under-researched in the context of disability-inclusive TVET for the enhancement of learning experiences of learners with disabilities in the Kenyan Coastal region. This qualitative study explores the challenges and recommends coastal context- specific interventions aimed at integrating mental health support, inclusive technologies, and gender-responsive approaches to improve learning outcomes and experiences for learners with disabilities. Data from learners with disabilities, trainers, administrators, parents, and counselors reveal low use of assistive technologies, inadequate mental health services, insufficient training for trainers, and funding constraints. The findings also reveal critical gaps in institutional preparedness, limited mental health support systems, and lack of gender-sensitive frameworks. In conclusion, this study advocates for deliberate collaboration among various stakeholders and sectors grounded in advancing mental health, digital inclusion, and gender equity as a transformative force for empowering TVET institutions in the coastal region for inclusive and gender equitable education. The study generates actionable recommendations for policy makers, educators and development partners to come up with contextually relevant strategies that enable every learner to benefit in the journey towards an inclusive and equitable technical education.

Keywords: Inclusive education, mental health, assistive technology, gender equity, disability, TVET, Kenya

INTRODUCTION

Technical, Vocational, Education and Training (TVET) has long been associated with equipping individuals with skills necessary for socio-economic development and a key component of human resource development (UNESCO, 2018) towards sustainability. In recent years, TVET has achieved recognition for its potential to advance the Sutainable

Development Goals (SDGs) in Africa and to foster the realisation of African Union's agenda 2063 which calls for equal participation in education and work, aligning with SDG 4 on inclusive, equitable and quality education and lifelong learning opportunities for all (UN, 2015). The United Nations Convention on the rights of persons with disabilities upholds the right of learners with disabilities to quality education and training (UNESCO , 2013). In Kenya, these provisions are domesticated by the Disability act of 2012 in conjunction with Article 54(1) b of the 2010 Kenya constitution.

Despite these provisions, TVET institutions continue to face challenges in implementation of inclusive education including inadequate teacher training, insufficient funding, inaccessible infrastructure, and societal stigmatization of learners with disabilities (Chinengundu, T., & Hondonga, J., 2024). TVET institutions in the coastal Kenya are no exception to these challenges. To achieve inclusivity, requires addressing systemic barriers, leveraging mental health and technology and promoting gender equity in creating an inclusive educational environment for learners with disabilities. This study investigated the integration of mental health, technology, and gender equity in shaping the learning experiences of learners with disabities in Coastal Kenya's TVET institutions, aiming to inform contextually relevant interventions for inclusivity.

Problem Statement

Learners with disabilities in Kenyan Coastal TVET institutions continue to face various challenges related to mental health, lack or limited technologies, and gender-based disparities. Mental health challenges arising from stigma, stress, societal isolation, anxiety, as well as lack of assistive technologies affect learners' academic progress and wellbeing (Brighton Center, 2024); meanwhile, girls face "double discrimination" stemming from both gender and disability-based exclusion that adversely affect their access to quality education. Unfortunately, these challenges go unaddressed or unmet due to underfunding and lack of policy implementation and planning at institutional level.

Currently, there's limited data-driven evidence on effective, context-specific interventions that integrate mental health support, technological accessibility, and gender equity to enhance learning experiences and outcomes in these Coastal TVET institutions. This gap hinders the development of responsive, inclusive, and sustainable strategies needed to transform TVET institutions into supportive environments for all learners. While policies recognize the importance of inclusion, their implementation at the institutional level remains uncoordinated and under-resourced. Moreover, the lived experiences and voices of learners with disabilities especially from gendered perspectives and in low resourced coastal region are rarely centered in the design of solutions. Therefore, there is an urgent need to explore the barriers faced by learners with disabilities, document, and come up with interventions that holistically address challenges specifically in Coastal Kenya's TVET landscape. Furthermore, it's critical that the interventions are context-sensitive and effectively address the integration of mental health support, technology accessibility and gender inclusivity for learners with disabilities in Coastal TVETs. The purpose of this study is to examine the barriers that learners in Kenyan Coastal TVETs face related to mental health, technology, and gender equity, and how these affect their learning experiences, by exploring the experiences of key informants from six selected TVET institutions. The study proposes practical and grounded context-driven interventions to

policy makers and educationists to improve learning experiences, outcomes and well-being among learners with disabilities in TVET institutions in Coastal Kenya.

Objectives

1. Establish the relationship between mental health support services and learning experiences of learners with disabilities in the TVET institution of coastal region
2. Evaluate the role of technology on facilitating learning outcomes for the learners with disabilities
3. Determine the Gender differences in learning outcomes among learners with the disabilities.
4. Mitigate on the appropriate intervention strategies.

LITERATURE REVIEW

Mental Health

World Health Organization (2023) highlights the importance of integrating mental health literacy into daily school life to establish the foundations of mental health, improve early recognition of mental disorders, and reduce stigma. Mental health challenges such as stigma, depression, trauma can significantly impact on the learners' experiences and outcomes as well as social integration. For learners with disabilities these effects are more pronounced due to stigma, socio-cultural beliefs, accessibility barriers and lack of institutional support. UNESCO-UNECOV (2024) underline the need for social and emotional support. Studies highlight the importance of embedding mental health services within educational settings to foster learners' resilience and emotional well-being, particularly for learners With Disabilities (LWDs) who face compounded barriers (Brighton Center, 2024). In addition, there's a crucial need for a comprehensive inclusive approach to mental health for learners with disabilities, empasizing targeted interventions within a universal framework (McMillan & Jarvis (2013). Despite these existing needs, many Kenyan TVET institutions, still grapple with lack of trained counselors familiar with disability-specific issues. As a result, learners with disabilities face heightened emotional and psychosocial difficulties (Kenya Institute of Special Education, 2018).

Technologies

Access and use of appropriate technologies, such as assistive devices and digital tools, can bridge the gap for learners with disabilitiesas well as enhance their functional capabilities and well-being (World Health Organization Regional Office for Africa, 2021). The integration of digital technologies promises enhancement of accessibility and inclusivity to learners with disabilities (Dube and William, 2020). The advancement of artificial Intelligence (AI) and advancement in information and communication technology (ICT) offers innovative cutting-edge educational technologies that will transform the traditional pure knowledge of transfer (Kundu and Bej, 2021). For digital materials to be accessible to everyone including those with special needs, adaptive technologies must be utilised. Countries like Malasyia have embraced inclusive digital pedagogy by adopting a student-centered approach that

integrates the power of ICT to enhance learning experiences and outcomes of learners (Chun & Abdullah, 2021).

Use of assistive technologies such as Screen readers, Braille displays, magnifiers for visually impaired student, Speech-to-text and text-to-speech software can effectively enhance learning outcomes for learners with speech impairments. Hearing aids, captioning tools and transcripts for those with hearing impairments and mobility aids and adaptive tools for learners with physical disabilities are designed to support learners with disabilities in overcoming barriers within their learning environment. Thus, promotes accessibility to quality and equitable technical education. Lack of such appropriate technologies and assistive devices severely limits their access and full participation in academic programs.

However, studies report low integration of assistive technologies in Kenyan TVET institutions more so in the coastal TVETS mainly due to insufficient funding, lack of technical expertise, and outdated infrastructure (TVETA, 2024). Moreover, the digital divide remains a significant barrier in many low-resource TVET settings (UNESCO, 2020). Studies have called for greater investment in accessible digital platforms and training for instructors in inclusive EdTech use (Eide & Loeb, 2019).

Gender and Disability

Research shows that structural barriers, cultural norms and institutional biases continue to perpetuate gender inequality in TVET systems. According to UNESCO-UNEVOC (2019), factors such as societal expectations, lack of role models, limited career guidance, and gender-insensitive learning environments contribute to the low participation and retention rates of women in vocational training programs. A number of studies have highlighted gender disparities within TVET.

Tobias et al. (2024) examined gender disparities in Technical and Vocational Education and Training (TVET) programs across Germany, Malaysia, and Mexico using data from UNESCO's 2024 Gender Report and a survey of 90 female TVET students. Their findings revealed that Germany and Malaysia achieved notably higher female completion rates, reaching 100%, compared to Mexico's lower rate of 60%. The success observed in Germany and Malaysia was attributed to robust policy frameworks and the effective integration of technology, whereas Mexico's limited digital infrastructure and strong socio-cultural constraints were identified as key barriers. Overall, the study underscores the critical role of policy design, technological capacity, and socio-cultural context in shaping gender equity and learning outcomes in TVET programs globally.

A recent study by Leong (2024) explores the transformative potential of inclusive TVET systems in equipping learners with essential skills for economic empowerment and promoting social equity. The study highlights several strategies for enhancing inclusivity, including the integration of assistive technologies, the adoption of gender-responsive curricula, and the development of community-based partnerships. However, it does not provide an in-depth analysis of the challenges encountered during the implementation of these strategies. Gender disparities are a persistent challenge in TVET institutions in Africa (Bray-Collins, Andrade, & Wanjiru, 2022). In many African contexts, including Kenya, young women with disabilities experience compounded forms of discrimination arising from both their gender and disability status. These intersecting barriers negatively affect their access

to TVET opportunities, mental well-being, and future career prospects (Plan International, 2018). Evidence across 24 African countries indicates that female enrolment in TVET programs remains significantly lower than that of their male counterparts. Moreover, women who do enroll are often concentrated in traditionally low-paying service-oriented courses such as secretarial work, beauty therapy, and hospitality rather than in higher-paying technical fields like electrical engineering, construction, mechanical engineering, or plumbing (UNESCO, 2012; 2013).

Developing Integrated Approaches

The integration of mental health support, technology, and gender equity in education systems has been identified as a best practice for enhancing the learning outcomes of marginalized groups (ILO, 2021). However, a lack of context-specific research in Coastal Kenya limits the understanding of how these components can be effectively implemented in TVET institutions. This study aims to bridge this gap by providing evidence-based recommendations tailored to the region's unique socio-cultural and infrastructural context.

Barriers in the Implementation of Inclusive Education in TVET's

Implementation of inclusive education in TVET colleges and institution faces varied barriers. Challenges including limited physical infrastructure, lack of trained teachers, inadequate funding and inadequate support system for learners with disabilities as they transition from secondary schools to TVET colleges and institutions (Delubom et al. (2020). Further, study in East Africa by Ebuenyi et al. (2018) identified more or less the same structural and institutional barriers that limit the inclusion of persons with mental disabilities in technical and vocational education and training (TVET) programs in East Africa. These included clear policies, weak implementation plans, insufficient staff training, rigid and inflexible TVET curricula, while Jobir (2024) highlights funding inadequacies and infrastructural barriers as significant limits to inclusion. Research across African contexts identifies attitudinal challenges and calls for institutional reforms and teacher training to support inclusion (Ngwenya et al., 2025). Studies focused on South African TVET colleges specifically report inaccessible facilities and the critical need for assistive technologies (Mabunda, 2024).

Studies in Kenyan TVETs' highlight pervasive challenges including discrimination, inaccessible infrastructure, and limited support services, which hinder full inclusion of persons with disabilities (Mwangi and Otieno, 2023; UNDP, 2025). Funding limitations pervade all inclusion efforts, underscoring the need for prioritized resource allocation.

METHODS

Study Design

This study employed qualitative exploratory design to unravel the barriers that learners with disabilities continue to face in relation to mental health, assistive technologies, and gender in equalities among learners with disabilities while exploring their learning outcomes. The qualitative exploratory design was suitable as it enabled the researchers to capture the depth of the lived experiences and to explore the complex issues that were difficult to

measure quantitatively (Kalu and Bwalya, 2017). Furthermore, the design was appropriate as it analysed the personal perceptions, feelings, attitudes and views of the participants, since the study's aim was to gather insights on the practice and services on mental health, technology, and gender equity in TVET's institutions in Coastal Kenya.

Study Area

The research focused on TVET institutions in Coastal Counties of Kenya namely Mombasa, Kwale, Kilifi, Tana River, Lamu and Taita Taveta. Studies have revealed that parents of children with disabilities in Kenya's Coastal region sometimes conceal their children to protect them from societal stigma and prejudice rooted in cultural misconceptions about disability(Gona, 2016). Further, the region is under-resourced making parental sensitization efforts difficult, hence the choice of the study area.

Study Population

The study population comprised learners with disabilities in TVET institutions, as they were the primary beneficiaries of inclusivity. Additionally, TVET trainers were included to identify training gaps and provide insights into integration of inclusivity in the learning progress. TVET principals were sampled to offer perspectives on institutional strategies for fostering inclusive education. The student Counsellors, gender and disability coordinator , the dean of students office, the Regional Director of TVETs were all involved to evaluate the mental health program, impact of assistive technology, gender equity influence on the learning outcomes of these learners.

Sampling

Stratified and purposive sampling techniques were used to sample institutions, principls and their deputies, deans offices, trainers, counsellors, gender and disability offices and learners with the disabilities in TVET institutions. In the six counties of coastal Kenya, Lamu and Tana River counties reported no students with disabilities at the time the sampling framework was being developed.

Consequently, the study focused on the remaining four counties: Mombasa, Kwale, Kilifi, and Taita Taveta. These counties represent both urban and rural areas in Kenya. Only TVETs with students with disabilities were chosen for the study. All 24students with disabilities from these TVETs institutions were included to ensure the data was accurate and unbiased.

Additionally, purposive sampling was used to select 6 TVET Administrators, 6 Gender and Disability Coordinators, 6 Dean of students, 6 Student Counsellors, and12 TVET trainers(specifically those teaching learners with disabilities), and the parents or guardians, and the regional director, giving a total of 61 participants as shown in table 1 below.

Table 1: Summary of key respondents from selected TVET Colleges in the Coastal Region of Kenya

County	TVET College (Code)	Disabled Learners	Key Informants (per College)	2 Key Informants (per College)	The Coastal Regional Director
Mombasa	College A College B	4 2	Principal, Dean of Students, Students' Counsellor, Gender Disability	TVET Trainers Parents	
Kilifi	College C College D	2 2	Principal, Dean of Students, Students' Counsellor, Gender Disability Coordinator	TVET Trainers Parents	
Kwale	College E	5	Principal, Dean of Students, Students' Counsellor, Gender Disability Coordinator	TVET Trainers Parents	
Taita Taveta	College F	9	Principal, Dean ofStudents, Students' Counsellor, Gender Disability Coordinator	TVET Trainers Parents	
Total		24	24	12	1
Total no of Respondents			61		

Data Collection

The research instruments were validated by experts at the university before conducting piloted study in one of the TVET institutions in Coastal region. Data were collected through semi-structured interviews and focus group discussions (FGDs), guided by well-developed interview and discussion guides aligned with the study objectives. Key informant interview method was conducted on the principals, trainers, student counsellors, gender and disability coordinators and the TVET Regional Director. The interview was semi structured to capture participants experiences, and perspectives on current practices, challenges and recommendations for integrating mental health, technology, and gender equity. The interviews took sufficient time about 45 to 1 hour and all interview sessions were recorded using an audio-recorder to allow transcribing of the data during analysis. Focus Group Discussions (FGDs) were conducted on learners with disabilities to understand their direct experiences and perceptions on the services and interventions mitigations in their institutions. Any ambiguities or misconceptions were clarified by seeking verification and clarification from the participants to enhance rigor and trustworthiness of the qualitative data.

Data Analysis

Themantic analysis approach ((Braun & Clarke, 2012) was used to analyse the qualitative data. Transcripts from interviews and focus groups were coded through data labelling. This

involved identifying similar and different features, issues, and topics that came out clearly from researchers' interpretation of participants narration and deductive codes derived from the research objectives (mental health, technology integration, gender equity).The researchers then classified themes from the coded transcripts so as to present findings in a coherent and meaningful way. Data were organized into key themes capturing: Mental health support strategies and their effectiveness, application and challenges of assistive technology usage, Gender equity facilitation and barriers within TVET setting, recommendations for improving inclusive learning experiences and analyzed using thematic Content analysis.

Ethical Considerations

Ethical approval was obtained from the Pwani university Ethics and review committee before the study and NACOSTI permit Informed consent was sought from all participants, assuring confidentiality, voluntary participation, and the right to withdraw at any time. Special attention was given to protecting the dignity and privacy of learners with disabilities throughout the research process. Further pseudonyms were used in place of actual participants' names to conceal their identities.

RESULTS / FINDINGS

Categories of Disabilities Reported by Learners and Support Required

Learners with physical impairments commonly use crutches, walkers, and wheelchairs. Additionally, assistive technologies such as AI tools for reading and writing, adaptive keyboards, large print materials, laptops, orthopedic shoes, and prosthetic limbs were identified as highly beneficial. Across all groups, learners emphasized that assistive devices have significantly improved their understanding of lessons, enabled them to complete assignments, participate actively in class activities, and carry out practical tasks more effectively. However, financial constraints remained a major barrier to accessing many of these helpful technologies.

The staff from the sampled TVET institutions highlighted that the disabilities included physical disabilities, sensory disabilities such as vision impairment (VI) and hearing impairment (HI), developmental disabilities like autism spectrum disorder, attention-deficit hyperactivity disorder (ADHD), and learning disabilities (dyslexia and dyscalculia), among others. It was reported that these kinds of disabilities usually manifest during counselling sessions because they are not overt conditions, especially among students with neuro-divergent categories. However, the major features of mental health disabilities affect the emotional and psychological well-being of learners with disabilities. Such conditions often cause learners to experience high levels of stress, depression, anxiety, bipolar disorder, and schizophrenia, especially during exams and socio-economic difficulties, more than the state of their health. Chronic health conditions (CHC) were noted to be among the recurring disabilities affecting learners with disabilities. It was reported that learners with disabilities require close attention and support, as some suffer from epilepsy, diabetes, multiple sclerosis, chronic fatigue syndrome, chronic pain, and mental health disorders, particularly when they face pressure from academic work.

Linkage Between Mental Health Support Services and Learning Experiences of Learners with Disabilities in TVET Institutions

Experiences of Stigmatization and Discrimination

The study revealed that all learners with disabilities (LWDs) experienced some form of discrimination within TVET institutions. Common manifestations included social isolation, harassment, and derogatory name-calling. For example, one female trainee shared, *"Some students avoid me; they don't want to share a room with me because I cannot perform certain tasks like cooking for myself."* Another participant recounted a distressing incident where a lecturer referred to him using a derogatory term *'wewe mlemavi'*meaning "one who cannot walk," which negatively impacted his self-esteem. Trainers corroborated these experiences, noting that some students deliberately avoided assisting LWDs with note-taking or carrying chairs during classes.

Counsellors echoed these findings, identifying anxiety, exam-related stress, and low self-esteem as the most common mental health concerns. They emphasized that, while general services exist, learners with disabilities often require more tailored and accessible support.

Awareness and Accessibility of Mental Health Services

Although learners were aware of existing mental health and counseling services, these provisions often failed to address their unique needs. According to reports from the counselling office, a comprehensive range of services are available to support learners with disabilities in some TVETs. These include individual and group counselling sessions, peer counselling training programs, mental health awareness campaigns, collaboration with disability-focused societies, leadership opportunities for students with disabilities, and the dissemination of awareness materials such as posters and memos aimed at reducing stigma and discrimination. Additional support mechanisms reported included peer support groups, mental health talks by counselors, health professionals, and NGOs such as SHOFCO, along with WhatsApp groups facilitating informal peer communication.

However, a number of institutions lacked specialized counselors trained to support LWDs, and a lack of formal mental health policies resulted in adhoc and inconsistent responses to mental health needs. Critical mental health challenges identified among LWDs included depression, anxiety, stigma, and social isolation factors that adversely affected their academic journeys.

Impact of Mental Health Support on Learning Outcomes

Mental health and counseling services emerged as pivotal in fostering better stress management, mental well-being, and self-awareness among learners. Trainers expressed a proactive stance in identifying emotional and psychological difficulties, offering support or referrals to counseling teams when necessary. For instance, one trainer noted,

"If I observe a student withdrawing from classes, exhibiting poor concentration or mood changes, or a sudden drop in grades, I try to understand the issue and offer help or refer them to the counseling team."

Learners who accessed these services generally demonstrated improved mental health and academic performance. Counselors further reported enhanced completion rates among LWDs benefiting from mental health support. A notable success story includes a trainer with a disability who progressed to his final year in diploma studies after completing a certificate course, exemplifying the positive impact of these services. Success stories from institutions further illustrate these linkages. A student with dwarfism in the mechanical engineering department innovatively constructed his own classroom table. Creative outlets such as TikTok content creation, choir participation, and sports competitions were also cited as enabling emotional expression and confidence-building. One student noted:

"Some students who once avoided class are now active in choir and sports. It's helped them socially and academically."

Counsellors stressed that some challenges stem from a lack of self-acceptance and staff misinterpretation of disability behaviors (e.g., assuming students with hearing impairments are ignoring instructions). Furthermore, the absence of PWD registration cards for many students limits their access to financial aid like HELB loans.

"Many learners lack the disability ID, and without it, they miss financial support. That adds stress that affects performance."

Nevertheless, both trainers and special needs educators expressed the need for ongoing mental health awareness and capacity-building initiatives within their institutions.

Role of Technology in Facilitating Learning for Learners with Disabilities

Availability and Use of Assistive Technologies

Despite the presence of general computer labs and projectors, the study found a significant lack of essential assistive technologies such as screen readers, Braille materials, speech-to-text software, and hearing aids in most TVET institutions. Efforts to integrate inclusive digital platforms and adaptive classrooms exist but are often informal and reliant on individual trainers. Most trainers lacked formal training in adaptive technologies and requested capacity-building support.

"We've not been trained on using adaptive technologies for inclusive learning."

One trainer reiterated.

Infrastructure adaptations such as ramps and specialized toilets have been implemented to improve physical accessibility. One TVET particularly stood out with progressive measures providing spacious emergency alarm-equipped toilets, multiple wheelchairs, and employing a sign language interpreter to assist hearing-impaired learners. However, many laboratories and workshops remained inadequately adapted to the needs of LWDs, limiting their participation in practical training and hands-on learning experiences.

Technology's Influence on Learning Experiences and Outcomes

Technology was recognized as a critical enabler of inclusivity and enhanced learning for LWDs. It played a role in improving communication, engagement, individualized learning, social inclusion, confidence building, and the development of academic skills. Learners

reported benefits from technological tools such as projectors and digital notes, which enriched understanding and interest in their coursework. One trainee mentioned, *"I use my smartphone to download lecture notes, conduct research, and communicate with peers through WhatsApp groups."*

It's evident that, the assistive technologies enhanced their skill developments, competencies and dependency. However, some negative aspects of technology use were also acknowledged, including instances of online bullying, highlighting the need for comprehensive digital safety measures.

Notwithstanding the commendable advancements achieved, substantial systemic impediments persist, obstructing effective incorporation of technology for students with disabilities. These obstacles encompass an absence of earmarked financial resources for adaptive educational instruments, inadequate professional development for trainers pertaining to inclusive pedagogical technologies, and educational settings that frequently exhibit an unwelcoming disposition towards the utilization of assistive devices. Furthermore, the limited engagement of learners in the processes of planning and design, enduring societal stigma, unhelpful attitudes from trainers, and pervasive economic hardship aggravate these difficulties.

Gender Differences Implications on the Learning Experiences and Outcomes of Learners with Disabilities in TVET Institutions

Perceived Gender Parity in Learning Environments

Across learners, trainers, and administrators, there was a general consensus that male and female students with disabilities faced similar academic and emotional challenges. Most participants reported no significant gender-based differences in classroom participation, confidence in using technology, or support-seeking behavior. As one trainer noted:

"In my experience, I have not observed any significant gender-based differences in the mental health challenges faced by learners with disabilities."

This perception was further supported by feedback from trainees who described their institutions as neutral and inclusive, particularly in terms of peer interaction and access to trainers or counselling support.

Gaps in Gender-Responsive Facilities and Support

Despite perceived equity in social interaction and instruction, critical structural gaps remain in addressing gender-specific needs. While efforts have been made such as installing ramps, handrails, and accessible toilets, these are often insufficient or in disrepair, especially in relation to the needs of female learners.

Female students with physical disabilities raised concerns about limited access to gender-specific washrooms, lack of privacy in shared dormitories, and insufficient gender-responsive support services, highlighted critical gaps in addressing their unique needs within TVET institutions. One student recalled:

"Security at the gate asks me to open my bag, even though it's clear I have no hands to do so."

This illustrates ongoing insensitivity and lack of awareness among institutional staff, particularly toward the dignity and autonomy of female learners with disabilities.

Gender Disparities in Institutional Inclusion

Although institutions reported adherence to gender and disability mainstreaming policies, targeted recruitment strategies for boys or girls with disabilities were largely absent. Recruitment efforts were generally broad and inclusive in intent but lacked specific programs to address the unique barriers faced by female learners. One administrator candidly noted:

"We do not deny them admission... and we are committed to re-evaluating this approach moving forward."

Further, while disability inclusion has been prioritized in employment and procurement, student-focused policies remain underdeveloped.

Gendered Barriers in Learning Experiences

Qualitative data revealed that female learners with disabilities face heightened vulnerability due to societal stigma, cultural expectations, and limited parental support, particularly where families prioritize non-disabled or male children. Gender-based discouragement from pursuing male-dominated technical fields further limits their opportunities. These concerns were echoed by parents, 85% of whom expressed dissatisfaction with the institutional support provided to their daughters. For example, one parent participant noted that:

"Female learners with disabilities are often discouraged from pursuing technical education".

Interconnections Between Mental Health, Technology, and Gender

The challenge of inclusive education in Technical and Vocational Education and Training (TVET) institutions for learners with disabilities (LWDs) in coastal Kenya is a complex issue. This proposed intervention study, titled "Integrating Mental Health, Technology, and Gender Equity to Enhance Learning Experiences and Outcomes for Learners with Disabilities in Technical and Vocational Education and Training (TVET) Institutions in Coastal Kenya" (Anika, 2025), is highly relevant. It addresses critical, interconnected barriers identified in empirical research, where LWDs remain one of the most marginalized groups, experiencing low enrollment and exclusionary practices (KISE, 2020; World Bank, 2023).

The Crucial Role of Mental Health Intervention

LWDs in TVETs often experience significant psychological strain. This distress stems from societal stigma, discrimination, and a lack of social belonging within their training environment (Muzite & Gasa, 2024; UNDP, 2024). This chronic exposure to exclusion can lead to poor mental health outcomes and demotivation (Svendby, 2021). The KISE (2020)

situational analysis noted that Psycho-Social Issues were among the major challenges faced by LWDs in TVETs, underscoring the inadequacy of existing support.

The proposed mental health intervention must, therefore, be systematic and targeted. Evidence shows that many regular TVET teachers are not equipped to deal with students' emotional or behavioral problems, often confusing them with indiscipline (Kuguru, 2020). Intervention must prioritize training staff to recognize and support mental health issues.

A study by Murgor et al. (2014), indicated that female LWDs often felt teachers were less approachable, making it difficult to seek help. The intervention must account for gender differences in help-seeking behaviors, necessitating tailored and confidential support mechanisms (Anika, 2025).

Technology Integration for Accessibility and Equity

The main technological gap is the insufficient provision and use of Assistive Technologies (AT) and accessible ICT infrastructure (KISE, 2020; TVETA, 2024). LWDs need AT to overcome physical and communication barriers (WHO, 2024), but survey data shows that a large percentage of LWDs in Kenya do not have access to the assistive products they need (WHO, 2024).

A strategic technology intervention is vital because, Technology is the great equalizer, Appropriate AT enables independence and access to curriculum content, which is a fundamental human right (UNCRPD, 2006). For instance, relying on Braille or slate and stylus limits proficiency when digital skills are required for employment, highlighting the need for more computers and advanced AT (UON Repository, 2018).

Trainer Readiness is Key. A lack of staff capacity to effectively integrate AT often renders the technology useless (ILO, 2021). The proposed intervention must include training staff on Universal Design for Learning (UDL) principles and AT integration to ensure equity.

The Intersection of Disability and Gender

This intersection creates a situation of double discrimination, which disproportionately affects female LWDs (ESSA-Africa, 2021). Empirical data from TVETs in Kenya confirm that not only is the overall enrolment of LWDs low, but the proportion of female LWDs is also lower (Murgor et al., 2014). The gender equity intervention must address these structural barriers. Challenging Stereotypes such as Low participation by women is often linked to the perception that many TVET courses are male-suited, which discourages women with and without disabilities from accessing specific opportunities (ILO, 2022; Essa-Africa, 2021). Targeted mentorship and role models are crucial to encouraging female LWDs into non-traditional fields.

In Policy Implementation, the Model Gender Mainstreaming Policy for the TVET Sector (NGEC, 2024) provides the necessary policy framework. The intervention must focus on the practical domestication and resourcing of this policy at the institutional level to ensure physical safety, infrastructure equity, and affirmative action are genuinely implemented (NGEC, 2024).

A Unified and Interconnected Strategy

The proposed study argues that these three intervention areas are inextricably linked (Anika, 2025). Mental health challenges (a result of stigma) cannot be solved without addressing the exclusion caused by the lack of inclusive technology. Furthermore, the lack of technology access and gender stereotyping directly undermine the self-esteem and aspirations of female LWDs.

Therefore, the holistic intervention approach proposed—which systematically integrates support for mental well-being, strategic deployment of assistive technology, and strict gender mainstreaming is the most effective pathway to achieving the TVET sector's mandate of providing equitable opportunities and facilitating the self-reliance and social integration of all learners (UNESCO, 2015)

Recommendations for Integration of Mental Health Support, Technology, and Gender Equity

Participants from various institutions strongly advocated for a structured and inclusive mental health support system tailored to the unique needs of learners with disabilities (LWDs). Key recommendations included expanding mental health services through online platforms, tele-therapy, and institution-based counseling featuring specialized supports such as sign language interpreters and peer counselors with disabilities. Integration of mental health into institutional policies was emphasized to ensure enforceable, disability-inclusive welfare frameworks. Mentorship programs, particularly targeting female learners, were suggested to boost confidence, reduce stigma, and enhance psychosocial well-being. Additionally, parent engagement workshops were recommended to empower guardians with strategies to support their children's mental and emotional health. Decentralizing counseling services to the departmental level was proposed to improve accessibility and responsiveness. One participant underscored that mental health must be a core element in all aspects of institutional planning, recognizing LWDs as integral members of society.

Regarding technology, while widely acknowledged as a critical enabler for learning, its provision remains limited. Participants recommended the provision of adaptive assistive devices such as laptops, screen readers, large-print materials, and specialized seating tailored to individual needs. Customizing Learning Management Systems (LMS) to accommodate diverse impairments and providing regular staff training on inclusive digital tools were highlighted as vital for effective integration. Formal procurement mechanisms were urged to secure sustainable and consistent access to assistive technologies. Moreover, building partnerships with disability organizations was seen as essential to leverage expertise and resources. The need for longitudinal research was identified to rigorously evaluate the impact of technology on academic success among LWDs. Learners stressed the importance of training in inclusive technology usage and LMS customization.

In advancing gender equity, participants noted that female learners with disabilities face disproportionate barriers despite existing policies. Strategies recommended included targeted recruitment and outreach to encourage enrollment of female students in technical fields. Career mentorship programs pairing female learners with successful role models were considered crucial for representation and motivation. Enhancing gender-responsive infrastructure, such as private and accessible washrooms, safe hostels, and adapted

transportation services, was deemed necessary. Allocating budgets specifically for gender mainstreaming activities would support sustained equity improvements. Community awareness campaigns aimed at challenging stigma and traditional gender roles were advocated to foster acceptance of girls in technical education. The collective call was for visibility, representation, and resources to build equitable learning environments.

Finally, strengthening institutional capacity emerged as vital for holistic inclusion. Key measures included inclusive planning and feedback mechanisms that actively involve learners with disabilities in decisions on infrastructure and support services. Flexible teaching and assessment strategies, such as extended exam time and accessible classroom settings, were recommended. Institutions were urged to establish structured student representation, including disability welfare officers, within student councils. Dedicated budget lines targeting mental health, assistive devices, and gender-responsive services would ensure resource availability. Routine sensitization and anti-stigma campaigns aimed at both staff and learners would foster empathy, understanding, and proactive inclusion. The overarching message was for TVET institutions to transition from reactive adjustments to systemic, proactive planning for inclusive education.

This comprehensive framework of recommendations aligns with existing best practices and research emphasizing multisectoral, coordinated approaches that embed mental health, technology, and gender equity into inclusive learning environments for learners with disabilities in TVET institutions.

DISCUSSION

The study aimed to investigate the interplay of mental health, technology and gender equity in influencing the learning experiences of LWDs in TVETS in the Coastal region of Kenya and come up with strategies tailored to the challenges faced in these institutions. The qualitative findings aligns with recent studies highlighting systemic challenges in Kenyan TVETs context (TVETA, 2024; UNDP, 2025). The study reveals deficit in mental health services where only a few institutions had trained counselors. Even with those that are trained they are not equipped for disability couselling, necessitating targeted counseling capacity building (KISE, 2018; McMillan and Jarvis, 2013).

Low integration of assistive technologies and lack of in the TVETs in coastal kenya. Participants emphasized the importance of government financial assistance for LWDs, particularly in the form of bursaries or subsidized loans, to support learners from disadvantaged backgrounds. It was also strongly recommended that mental health services be tailored specifically to the needs of LWDs, as the existing generalized services were insufficient. Early mental health screening was highlighted as crucial for timely intervention, promoting overall well-being, academic success, and socio-emotional development. Early identification allows for tailored support, preventing escalation and ensuring all learners with mental health needs receive appropriate care.

Furthermore, the study underscored the need for collaboration between government bodies, development partners, and public-private partnerships to secure funding for the provision and customization of assistive technologies. This multi-stakeholder approach would enhance access to technology and mental health resources, thereby improving the educational experiences and outcomes for learners with disabilities in TVET institutions.

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