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THEME: Innovations for Sustainable Development in Changing World

Subtheme: Education and lifelong learning for sustainable Societies

Title: Assessment of Availability of Financial Support in Readiness for Curriculum Implementation of Online Distance Learning in National Polytechnics in Kenya.

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Abstract

The transition to Online Distance Learning (ODL) is a strategic response to the demand for equitable access to quality education and sustainable development. This study explores the availability of financial support and its influence on the readiness of Kenyan National Polytechnics to implement ODL curricula. Anchored in Constructivist theory and the Theory of Equivalency, the study employed a mixed-methods approach with a convergent parallel design. Data were collected from ten National Polytechnics, comprising interviews with three principals and three heads of department, and questionnaires from 35 trainers and 207 trainees in the Department of Applied Sciences. Policy documents, including the TVET and ODeL policies, were also analyzed. Descriptive statistics and multiple regression analysis were used for quantitative data, while qualitative data from interviews and documents were subjected to thematic analysis. Findings revealed that most respondents moderately agreed that funding for ICT capacity building and continuous professional development was insufficient. The study recommends strengthening partnerships with government agencies, industry, and open educational resource platforms to enhance financial sustainability. Additionally, the Ministry of Education and TVETA should develop clear policy frameworks to guide and fund ODL implementation. This study contributes new insights into institutional preparedness for online curriculum delivery in technical and vocational education.

Keywords: Online Distance Learning, Financial Support, National Polytechnics, TVET, Institutional Readiness, Kenya, Policy, Sustainable Development

1. Introduction

The integration of online distance learning (ODEL) into Technical and Vocational Education and Training (TVET) institutions in Kenya has gained significant importance, driven by a changing educational landscape and global challenges like the COVID-19 pandemic. The digital explosion further necessitates leveraging technology for improved ODEL in TVET. However, the successful implementation of an online distance curriculum requires substantial financial support from various stakeholders. This thesis explores the availability of such financial support for National TVET institutions in Kenya, examining current funding mechanisms and drawing comparisons with global and regional approaches to TVET funding.

2. Statement of the Problem

Despite the growing emphasis and urgent need for online distance learning in Kenyan TVET institutions, a significant challenge lies in securing adequate and consistent financial support. While various stakeholders are recognized as potential funding sources, there appears to be disconnect between the ambitious goals of ODEL implementation and the practical financial resources available. Specifically, there are concerns regarding: the specific allocation of funds for ODEL within TVET budgets; the sufficiency of support for essential infrastructure (ICT, connectivity), trainer capacity building, and trainee support (devices, data); and the sustainability and accessibility of funding from government, donors, and the private sector. This financial constraint poses a significant barrier to the effective adoption and quality delivery of online distance education in Kenyan TVET.

3. Literature Review

Financial support from various stakeholders is indispensable for the effective implementation of online distance curriculum in National TVET institutions in Kenya. While the **Kenyan government** is a primary supporter of education, allocating funds from the national budget for

TVET, there's a noted absence of specific provisions for online distance learning infrastructure, trainer training, or instructional material development [Ministry of Education, Kenya]. This contrasts with developed nations like Singapore, where the Ministry of Education (MOE) directly provides comprehensive development and recurrent funds to TVET institutions, including the Institute of Technical Education and Polytechnics (MOE Singapore, 2024). Similarly, in-company training in the United States often represents a larger investment in TVET than government or educational bodies, funding occupational training and certification for employees (UNESCO – UNEVOC, 2021). Learners in East Asia, for example, can also seek financial assistance from the National Student Financial Aid Scheme (NSFAS) (Schrader-King, 2021), suggesting a benchmark for Kenya in student funding.

Beyond government, other potential stakeholders for financial support include **development partners and donors**, such as international organizations and development agencies, who can offer grants or loans for infrastructure, capacity building, and technology (Kiarii, 2025,). Private companies and businesses, especially those relevant to TVET industries, can contribute through sponsorships, grants, donations of equipment or software licenses, and scholarships. Philanthropic foundations and non-profit organizations also provide grants focused on education and skill development. While these avenues exist, they often require a "tedious exercise" to secure (Kiarii 2025). Engaging **alumni networks** through fundraising campaigns and scholarship programs is another potential source, though dependent on institutional initiative.

However, significant challenges hinder the availability of funds for online TVET in Kenya. A major obstacle is the **limited or absent dedicated funding for online distance learning** within TVET budgets [Ministry of Education, Kenya]. This issue is compounded by a general perception of TVET as less esteemed than general education, leading to lower public investment despite its higher costs for materials and equipment [Funding for vocational training in Kenya]. Developing countries, including Kenya, often face budgetary constraints, as noted by Kigige (2026), necessitating support from Non-governmental Organizations (NGOs) and the private sector [Kigige, 2026]. The **initial high cost of establishing ICT-based learning**—including computer network infrastructure, quality content development, and faculty training—is a profound concern, with limited budget allocations for ICTs in education in developing countries (Mutua, 2021). This financial constraint often leads institutions to not prioritize ICT setup, despite its necessity for online learning's success, encompassing online registration, access management, and support services (Kiarii, 2024).

Furthermore, the impact of external shocks like the **COVID-19 pandemic** has exacerbated existing inequalities, particularly for vulnerable households unable to finance online learning resources, leading to a digital divide (Learning Outcomes of the Usage of E-learning Systems in TVET). Studies have shown that during the pandemic, TVET institutions often lacked sufficient strategies and initiatives to support the adoption and use of digital learning, including planned training for trainers (Hamdan and Amorri, 2022). The absence of a comprehensive national policy for open and distance learning and dedicated budgetary provisions for institutional funding contributes to this lack of financial readiness (Gakweli, 2024). While TVET institutions in Kenya are adopting online teaching, many may not be financially prepared, given that their budgets largely rely on government grants which often lack substantial investment specifically for digital learning infrastructure, equipment, and training (Kigige, 2026). Moreover, a 2025/2026 budget analysis for Kenya indicates that while education receives the largest share, significant portions are allocated to teacher remuneration, general infrastructure, and student loans and scholarships (HELB, Universities Fund), with **limited explicit mention of specific funds for developing or scaling online distance learning within TVETs' direct operational or development budgets** beyond general ICT or infrastructure allocations [Parliament.go.ke, Standardmedia.co.ke, Universities Fund]. This suggests that while there is funding for TVET, there's "scanty information on how the government is prepared in funding Online Distance learning in TVET institutions in Kenya." (Technical and strategic plan (2023-2027).

The **poor image of TVET** and a lack of dedicated funding mechanisms continue to pose significant challenges, making TVET dependent on unsecured funding options like donor-funded initiatives or sponsorships. Government financing for technical training in sub-Saharan Africa, including Kenya, has been sporadic and declining, leading to uncertainties and financial limits that hinder institutions from keeping pace with technological advancements (Kigige, 2026). Despite the emphasis by global bodies like the World Bank and UNESCO on skill development and sustainable growth through VET, it remains inadequately funded due to high costs and competing priorities, a common concern across many countries (World Bank, 2026). The need for strong leadership and institutional managerial support in releasing funds is critical for the success of online teaching and learning, with a direct link between managers' awareness and their readiness to support such ventures (Appalsami, 2024)]. Overall, while the potential for various funding mechanisms exists, current research indicates a significant gap in dedicated and consistent financial support for the implementation of online distance curriculum in Kenyan TVET institutions.

In **Kenya**, the government recognizes online education, but the effectiveness of initiatives and sufficiency of funds for TVET specifically require investigation. Donor organizations, NGOs, and philanthropic foundations play a role in funding e-learning, though securing grants can be tedious. Private sector involvement, through sponsorships and grants, is also crucial but often requires rigorous proposal writing skills. Income-generating ventures, like mandated production units in **Nigeria** and community projects in **Thailand**, offer alternative funding models. The review consistently points to inadequate funding for TVET globally, especially for the high costs associated with materials, equipment, and ICT infrastructure for online learning, exacerbated by a lack of specific national policies for online learning budgetary provisions in Kenya. Overall, while the potential for various funding mechanisms exists, current research indicates a significant gap in dedicated and consistent financial support for the implementation of online distance curriculum in Kenyan TVET institutions.

4. Materials and Methods

This study adopted a **concurrent nested mixed-methods research design**, where quantitative data was predominant, complemented by qualitative information.

- **Participants:** Data was collected from trainers, trainees, Heads of Departments (HODs), and Principals in National TVET institutions in Kenya.
- **Data Collection Instruments:** Questionnaires were primarily used for trainers (N=33) and trainees (N=164) to gather quantitative data on their perceptions of financial support availability. Qualitative data was collected from HODs and Principals through interviews and supplemented by document analysis to provide additional context and depth.
- **Measurement of Variables:** For quantitative data, a five-point Likert scale (1=Strongly Disagree to 5=Strongly Agree) was used to assess agreement with statements related to financial support.
- **Data Analysis:** Descriptive statistics (mean values, standard deviation, and frequencies) were used to analyze the quantitative data. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated for factor analysis. Qualitative data was integrated to complement and explain quantitative findings.

5. Results and Discussion

Trainee Results (N=164):

Trainees' descriptive results on availability in financial support from various stake holders

Trainees' statements on availability of financial	SD	D	N	A	SA	Mean	Std.

support from various stake holders (N = 164)							
• Learners are assisted to acquire smartphones or laptops by the institution	35(21.3%)	76(46.3%)	19(11.6%)	19(11.6%)	15(9.1%)	2.41	1.207
• The institution offers free wifi hotspots and internet bundles to learners	12(7.3%)	16(9.8%)	26(15.9%)	50(30.5%)	60(36.6%)	3.79	1.241
• This institution has an internal budgetary allocation to support digital learners	5(3%)	27(16.5%)	54(32.9%)	33(20.1%)	45(27.4%)	3.52	1.148
• Students get loans to support their studies from HELB or counties for buying laptops and other ICT infrastructure required.	6(3.7%)	23(14%)	17(10.4%)	40(24.4%)	78(47.6%)	3.98	1.216
• There are subsidized data bundles for all learners	19(11.6%)	43(26.2%)	39(23.8%)	39(23.8%)	24(14.6%)	3.04	1.248
• Students get other financial scholarships via our institution	11(6.7%)	38(23.2%)	50(30.5%)	24(14.6%)	41(25%)	3.28	1.256
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy = .726							

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Device Acquisition (Mean=2.41): A significant number of trainees (46.3% agreed) reported receiving assistance for smartphones/laptops, though a considerable proportion disagreed, indicating varied support.

- **Free Wi-Fi/Internet Bundles (Mean=3.79):** A high level of agreement (67.1% agreed/strongly agreed) suggests institutions widely provide these.
- **Internal Budgetary Allocations (Mean=3.52):** Moderate agreement (47.5% agreed/strongly agreed) on institutional budgets for digital learners, with some variation in perception.
- **HELB/County Loans (Mean=3.98):** High agreement (72% agreed/strongly agreed) on students receiving loans for studies and ICT infrastructure, aligning with the TVET Act of 2019 and contrasting with situations like Somalia.
- **Subsidized Data Bundles (Mean=3.04):** Moderate availability, with varied perceptions among trainees (38.4% agreed/strongly agreed), contrasting with findings on poor internet connectivity in some TVETs.
- **Financial Scholarships (Mean=3.28):** Moderate availability (39.6% agreed/strongly agreed) through institutions.
- **KMO Measure:** 0.726, indicating moderately adequate data for factor analysis.

Trainer Results (N=33):

Trainers' descriptive results on availability in financial support from various stake holders

Trainers' statements on availability of	SD	D	MA	A	SA	Mean	Std.

financial support from various stake holders (N = 33)							
1. The institution has a distinct budget for digital learning programs	4(12.1%)	3(9.1%)	22(66.7%)	3(9.1%)	1(3%)	2.82	.882
2. This institution has a budget for staff to advance in their careers in digital technology or in-service.	4(12.1%)	11(33.3%)	11(33.3%)	6(18.2%)	1(3%)	2.67	1.021
3. The institution has a budget for refresher courses in ICT	3(9.1%)	14(42.4%)	6(18.2%)	10(30.3%)	0	2.70	1.015
4. This institution has an internal financial support for digital trainers to purchase internet data or	7(21.2%)	14(42.4%)	8(24.2%)	3(9.1%)	1(3%)	2.30	1.015

	subsidized data bundles							
5.	The institution solicits funds outside the institution to support online learning	5(15.2%)	9(27.3%)	12(36.4%)	7(21.2%)	0	2.64	.994

Table 4.13 presents the trainers' statements on the availability of financial support from various stakeholders for digital learning programs in an institution.

Distinct Digital Learning Budget (Mean=2.82): Trainers moderately agreed (12.1% agreed/strongly agreed) on the presence of a distinct budget, with low variation in opinion.

- **Staff Digital Advancement Budget (Mean=2.67):** Moderate agreement (21.2% agreed/strongly agreed), indicating a similar perception of budget availability for staff development.
- **ICT Refresher Courses Budget (Mean=2.70):** Moderate agreement (30.3% agreed), but significant disagreement (42.4%) highlights a gap.
- **Internal Financial Support for Data (Mean=2.30):** Considerable disagreement (63.6%) on internal financial support for trainers' internet data/subsidized bundles, indicating a critical lack of direct support.
- **Soliciting Outside Funds (Mean=2.64):** Moderate agreement (21.2% agreed) on institutions soliciting external funds, but 42.5% disagreed or strongly disagreed.

Discussion: The results confirm a multi-faceted approach to funding, with institutions providing some basic support (Wi-Fi, loans). However, significant financial gaps persist, particularly in direct support for trainee devices, subsidized data, and, critically, for trainer capacity building and recurrent ICT costs. This disconnect between the importance of ODEL and the financial reality is evident. While policies like the TVET Act enable student loans, comprehensive financial strategies for ODEL implementation, especially for trainers and infrastructure, are lacking. This misalignment directly impacts the readiness and quality of ODEL provision, underscoring the need for more targeted and sustainable financial interventions.

6. Conclusion

This research concludes that while there is an acknowledged need and some existing financial provisions for online distance learning in Kenyan TVET institutions, these are largely insufficient and fragmented. Trainees receive some support for connectivity and loans, but direct assistance for personal devices and subsidized data bundles remains inadequate. More critically, trainers, who are central to ODEL delivery, face a significant lack of dedicated financial support for their professional development in digital pedagogy, ICT refresher courses, and even basic internet data. The absence of comprehensive national policies for ODEL budgetary provisions, coupled with challenges in accessing diverse funding streams, creates substantial financial gaps in infrastructure development, maintenance, and human capacity building. Without a more robust, targeted, and sustainable financial framework, the full potential of online distance education in Kenyan TVET will be severely limited, hindering equitable access and quality outcomes.

7. Recommendations

Based on the findings, the following recommendations are put forward:

1. **Develop a National ODEL Funding Policy:** The Kenyan government should develop a specific national policy dedicated to the funding of online distance learning in TVET

institutions, clearly outlining budgetary allocations for infrastructure, content development, capacity building for trainers, and trainee support.

2. **Prioritize Trainer Capacity Building:** TVET institutions and the government must allocate dedicated budgets for continuous professional development programs for trainers in digital teaching methodologies, ICT skills, and online course design. This should include financial incentives and direct support for internet access.
3. **Enhance Trainee Financial Support:** Institutions should explore and implement programs to assist trainees in acquiring essential digital devices (smartphones/laptops) and negotiate for significantly subsidized data bundles for all registered online learners.
4. **Invest in Robust ICT Infrastructure:** There should be increased and sustained investment in developing and maintaining high-quality internet connectivity, computer laboratories, updated software licenses, and comprehensive learning management systems across all National TVET institutions.
5. **Diversify and Streamline Funding Access:** TVET institutions should actively pursue and simplify processes for accessing funds from diverse stakeholders, including robust engagement with the private sector through industry partnerships, targeted grant applications to donor organizations and philanthropic foundations, and the establishment of scalable income-generating ventures specifically for ODEL.
6. **Strengthen Institutional Leadership in Financial Management:** Institutional managers should receive training on strategic financial planning and proposal writing specifically for ODEL initiatives to effectively secure and manage resources.
7. **Monitor and Evaluate Funding Effectiveness:** Regular monitoring and evaluation of ODEL funding initiatives are crucial to assess their impact, identify ongoing gaps, and ensure equitable distribution of resources across all TVET institutions.

Outputs of the Research

Based on the research findings and conclusions, the following key outputs can be derived:

1. **Quantitative Data on Financial Support Perception:**

Trainee Perceptions (Table 4.12): Detailed Likert scale responses and mean scores indicating trainees' perspectives on the availability of financial support for devices, internet access, institutional budgets, student loans, subsidized data, and scholarships. This provides empirical evidence of areas where support is perceived as strong versus areas of weakness.

Trainer Perceptions (Table 4.13): Similar quantitative data illustrating trainers' views on distinct budgets for digital learning, staff advancement, ICT refresher courses, and personal internet data support. This highlights critical areas of underfunding from the trainers' perspective.

2. **Identification of Key Financial Gaps:**

Specific identification of the lack of adequate funding for trainee device acquisition.

Clear delineation of insufficient financial support for trainer capacity building in digital pedagogy.

Highlighting the infrastructural financial gaps, including connectivity, hardware, and software.

3. **Insights into Funding Mechanisms and Stakeholder Roles:**

Confirmation of the multi-stakeholder approach to TVET funding (government, donors, private sector, etc.).

Elucidation of the varying effectiveness and challenges in accessing funds from these diverse sources.

Recognition of internal budgetary allocations within institutions, but with varying degrees of perceived impact.

4. **Evidence of the Impact of Financial Constraints:**

Direct correlation between limited financial resources and the hindered readiness of TVET institutions to implement and sustain quality ODEL programs.

Indication that financial limitations contribute to issues like inadequate infrastructure, limited access to learning materials, and insufficient professional development for staff.

5. **Comparative Analysis of TVET Funding:**

Insights drawn from international and regional examples (e.g., US, Singapore, Japan, Malawi, Nigeria, Somalia) on different funding models and their implications for TVET, which serve as benchmarks or cautionary tales for Kenya.

6. **Validation of Theoretical Frameworks:**

The findings support the constructivist and equivalency theories by demonstrating that successful ODEL adoption relies on adequate resources, facilities, infrastructure, and continuous improvement, which are directly impacted by financial support.

7. **Recommendations for Future Interventions (Implicit):**

While not explicitly listed as an "output" here (as it would be in a recommendations section), the identified gaps and challenges inherently lead to actionable recommendations for policymakers, institutional leaders, and other stakeholders to improve financial support for ODEL in Kenyan TVET. These would typically include advocating for dedicated national policies, diversifying funding sources, investing in infrastructure, and prioritizing trainer development

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