



IMPACT OF DIGITAL TVET ON INFORMAL SECTOR GROWTH IN NIGERIA

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Abstract

Nigeria's informal sector is a vital component of its economy, contributing approximately 57.4% of GDP (\$1,442 billion at GDP PPP) and employing 92.3% of the workforce. Despite its significance, the sector faces challenges such as low productivity and limited access to modern business technologies. This study examines the impact of Digital Technical and Vocational Education and Training (TVET) on skill acquisition, productivity, and income levels in Nigeria's informal sector. Using a cross-sectional survey of 386 participants in Ado-Odo Ota local Government area, Ogun state Nigeria, data were analysed through regression analysis. The results indicate a strong positive relationship ($R = 0.785$) between Digital TVET adoption and key predictors (skill acquisition, informal sector performance, and income levels) explaining 61.6% of the variation ($R^2 = 0.616$, $p = 0.000$). Informal sector performance ($B = 0.537$, $p = 0.000$) had the most substantial effect, followed by skill acquisition ($B = 0.412$, $p = 0.000$) and income levels ($B = 0.318$, $p = 0.000$). The findings highlight the need for targeted interventions, including digital skills training, improved financial access, and enhanced infrastructure to drive sustainable economic growth. Policies that support business formalization, microcredit access, and digital inclusion are essential for enhancing productivity and resilience in Nigeria's informal economy.

Key words: Digital Technical and Vocational Education and Training (TVET), Income levels, Informal sector, Productivity, Skill acquisition.

Introduction

Nigeria's informal sector is a major pillar of its economy, contributing significantly to employment and Gross Domestic Product (GDP). The sector accounts for an estimated 57.4% of Nigeria's GDP, valued at \$1,442 billion at GDP Purchasing Power Parity (PPP) levels (International Labour Organization, 2021). In Q3 2023, approximately 92.3% of Nigerian workers were engaged in informal employment, underscoring the sector's dominance (National Bureau of Statistics, 2024). Covering agriculture, trade, and various services, the informal sector's role in economic sustainability remains crucial.

The Nigerian government, in collaboration with international organizations, is working to revamp Technical and Vocational Education and Training (TVET) to better align with the informal sector's needs. Initiatives such as UNESCO's integration of digital literacy into TVET curricula (UNESCO, 2024) and programs by NGOs like Tech Herfrica aim to empower women

entrepreneurs through digital and financial literacy training (Tech Herfrica, 2023). Furthermore, initiatives such as the National Information Technology Development Agency's (NITDA, 2025) Digital State Initiative and the Kano Digital Innovation Network (KDIN) emphasize digital skills development to support entrepreneurs, startups, and informal workers.

Statement of the Problem

Despite its economic significance, Nigeria's informal sector faces challenges such as low productivity, inefficiency, and limited access to modern business technologies (World Bank, 2022). Empirical studies indicate that most informal workers lack formal education and vocational training, leading to low-efficiency work practices (National Bureau of Statistics, 2022). Traditional TVET programs have struggled to incorporate digital competencies, limiting their effectiveness (Adegbite, Olanrewaju, & Uche, 2021). The digital divide—exacerbated by poor internet access, high costs, and digital illiteracy—further hampers the adoption of digital TVET (Nwosu & Adebayo, 2023). This study evaluates how digital TVET can bridge the skills gap, enhance productivity, and drive sustainable growth in Nigeria's informal sector.

Objectives of the Study

The study specifically aims to:

- Assess the impact of digital TVET on skill acquisition in Nigeria's informal sector.
- Evaluate the influence of digital TVET on the productivity of informal sector businesses.
- Examine the relationship between digital TVET and income levels among informal sector workers.

Literature Review

Conceptual Review

Digital TVET integrates digital tools in vocational education, enhancing skill development and employability through e-learning, digital simulation tools, and blended learning models (Prinsloo, 2024). While digital TVET fosters economic independence, barriers such as inadequate internet access and funding hinder its implementation, particularly for women in informal settlements (Benshak et al., 2024). The informal sector, comprising self-employed individuals, traders, and artisans, is central to economic development, contributing significantly to GDP and employment (Moses & Liu, 2023). The synergy between digital TVET and informal sector growth is critical for sustainable economic development.

Theoretical Review

The Human Capital Theory (Becker, 1964) suggests that investment in education and skills enhances productivity. Matache (2023) supports this, asserting that economies with higher

human capital investment experience faster growth. The Technology Acceptance Model (TAM) (Davis, 1989) posits that technology adoption depends on perceived usefulness and ease of use. Empirical studies show that user-friendly digital education programs have higher adoption rates (Li et al., 2024). Schumpeter's Innovation Theory (Schumpeter, 1934) emphasizes that innovation drives economic growth, with digital TVET providing workers the necessary skills for entrepreneurship (Dutta et al., 2023).

Empirical Review

Studies highlight digital TVET's role in enhancing productivity. Danquah and Owusu (2021) found that digital tools boost labor productivity and business growth in the informal sector. Onyima and Ojiagu (2017) demonstrated that businesses using digital technologies, such as mobile banking and social media marketing, are more likely to formalize. Yang (2024) revealed that digital platforms create job opportunities and foster innovation among informal workers in China, while Dutta et al. (2023) showed that digital payment systems in India enhance sales and efficiency. In Nigeria, Benshak et al. (2024) emphasized digital TVET's role in empowering women and reducing financial barriers.

Methodology

The study adopts a cross-sectional survey design targeting informal sector participants in Ado-Odo Ota LGA, including artisans, market traders, tech-based workers, skilled and unskilled laborers, and service providers. A multistage sampling technique was used, clustering major business hubs, followed by stratified and random sampling, resulting in 386 participants. Data were collected via structured questionnaires with a 4-point Likert scale and analyzed using regression analysis to examine the relationship between skill acquisition, sector performance, and income levels on digital TVET adoption. Reliability and validity tests confirmed Cronbach's Alpha (≥ 0.7). The regression model is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u$$

where Y = Digital TVET Adoption, X_1 = Skill Acquisition, X_2 = Informal Sector Performance, X_3 = Income Levels, β_0 = Constant, β_1 - β_3 = Regression Coefficients, u = Error Term.

Results and Discussion

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.785	0.616	0.612	2.134

R-value (0.785) indicates a strong positive connection between digital TVET adoption and its determinants. R^2 (0.616) suggests that 61.6% of the variation in digital TVET adoption is explained by the model.

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Regression	1524.52	3	508.17	72.56	0.000**
Residual	951.42	382	2.49		
Total	2475.94	385			

A significant F-statistic (72.56, $p = 0.000$) confirms the model's validity, demonstrating that skill acquisition, informal sector performance, and income levels significantly impact digital TVET uptake.

Table 3: Coefficients

Model	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	Sig. (p-value)
Constant	2.345		5.271	0.000**
Skill Acquisition (X_1)	0.412	0.398	8.102	0.000**
Informal Sector Performance (X_2)	0.537	0.489	10.254	0.000**
Income Levels (X_3)	0.318	0.296	6.842	0.000**

The strongest effect is from informal sector performance ($B = 0.537$), followed by skill acquisition ($B = 0.412$) and income levels ($B = 0.318$), all statistically significant ($p < 0.05$).

Conclusion and Recommendations

The study confirms that digital TVET adoption significantly correlates with skill acquisition, informal sector performance, and income levels. To enhance digital TVET adoption, the study recommends:

- Expansion of digital vocational training aligned with informal sector needs.
- Implementation of policies supporting financial access, infrastructure, and business formalization.
- Investment in affordable internet access and e-learning platforms.

Future studies could explore other external determinants such as regulatory frameworks, digital literacy, and socio-cultural perceptions affecting digital TVET adoption in Nigeria's informal sector.

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