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Empowering Women through TVET: Socio-Economic Impact of Female Technical and Vocational Education in Nigeria

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Abstract

Technical and Vocational Education and Training (TVET) is recognized as a critical tool in the developmental agenda of emerging economies. According to UNESCO (2012), it fosters women's empowerment and promotes literacy, thus contributing significantly to national development. This study aimed to examine the acquisition of TVET by Nigerian females and assess its impact on individual empowerment and the broader national economy. Primary data were collected from 118 female graduates across 90 TVET institutions in Nigeria. The analysis focused on academic performance, practical skill acumen (PSA), empowerment outcomes, employment status, and contributions to economic development. Findings showed that most respondents achieved strong academic performance and exhibited high levels of PSA in their areas of specialization, indicating a significant contribution of TVET to the quality of female human capital. Employment analysis revealed that a large proportion of the graduates secured gainful employment with potential for career advancement. However, financial empowerment among the graduates was limited. The study also identified significant contributions to economic growth through job creation and revenue generation, alongside a notable correlation between empowerment and job creation. It also averred that female participation in TVET contributes positively to workforce development, socio-economic advancement, and job creation in Nigeria. Despite challenges in financial empowerment, the study underscores the essential role of TVET in achieving sustainable development through gender-inclusive education and economic engagement.

Keywords: Technical and Vocational Education and Training (TVET), Female Empowerment, Socio-Economic Development, Human Capital, Nigeria

INTRODUCTION

The United Nations World Conference on Women (Beijing, 1995) emphasized the central role of women in socio-economic development, highlighting their productive, reproductive, and community-based responsibilities. These roles, when adequately supported, can transform societies. Women possess unique capabilities as problem-solvers and collaborators; however, to harness these potentials fully, deliberate empowerment strategies are required-chief among them is access to relevant, quality education and skills training.

Technical and Vocational Education and Training (TVET) serves as a strategic pathway for female empowerment and economic participation. According to UNESCO and the ILO (2002), TVET encompasses the acquisition of practical skills, technological knowledge, and professional attitudes essential for employment and societal development. It is not only a driver of economic growth and innovation but also a key component in achieving the United Nations Sustainable Development Goals (SDGs), particularly: SDG 4 (Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all); SDG 5 (Achieving gender equality and empowering all women and girls); and SDG 8 (Promoting sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all).

Despite global and regional investments in TVET (Tripney & Hombrados, 2013), female participation in technical and vocational sectors remains low, especially in developing countries like Nigeria. Barriers include poor societal perception of TVET, gender stereotypes, lack of family and institutional support, and limited access to information and career guidance. These challenges have restricted women's access to gainful employment, leadership roles, and full participation in the economy.

Furthermore, in Sub-Saharan Africa, including Nigeria, there is a limited body of empirical research that captures the tangible impact of female participation in TVET on socio-economic outcomes such as employment, empowerment, and national development. Much of the existing literature either lacks gender-disaggregated analysis or focuses predominantly on academic performance without assessing practical skill application and economic contributions.

This study fills a critical knowledge gap by providing gender-specific, data-driven insights into how female acquisition of TVET affects personal empowerment and national economic growth in Nigeria. It moves beyond theoretical discourse to analyze academic performance, practical skill acumen, employment outcomes, and economic impact. The study also establishes linkages between female empowerment, job creation, and national productivity-areas that remain underexplored in previous research. Therefore, this study seeks to evaluate the impacts of TVET acquisition on female empowerment and socio-economic development in Nigeria.

LITERATURE REVIEW

Despite improvements in global education access, women in low and medium icome countries (LMICs) still face barriers in skills acquisition and employment (World Bank, 2021). UNESCO-UNEVOC (2023) highlights inclusive TVET as critical to building resilient livelihoods. The African Development Bank (AfDB, 2022) notes the importance of aligning TVET with entrepreneurship, innovation, and labor market needs.

Salami (2013) stated that the unemployment rate for young women in Sub–Sahara Africa is high and they face particularly strong challenges in entering the labour force due to lack of education. However, Technical and Vocational Education and Training (TVET) offer a practical solution to the unemployment and literacy challenges confronting women. Moreover, TVET acquisition by females gives them opportunities, not only to be empowered but also, to make impacts and contribute to socio-economic development. The United Nations (UN) World Conference on Women hosted by Beijing in 1995 echoed similar sentiment by stating that females play a central role in socio-economic development through productive, reproductive and community management responsibilities (UN, 1995).

TVET offer a viable platform for female empowerment by enabling the female gender with the abilities to seize available work opportunities

which in turn impact upon global poverty and social stability (King and Palmer 2010; Péano *et al*. 2008; UNESCO, 2010; 2012; African Union, 2007).

Awotunde (2000) is of the view that TVET remains an integral part of national development strategies in many societies because of its impact on human resource development, productivity and economic growth. Tripney and Hombrados (2013) suggested that a growing investment in TVET globally since 2000 is due to its recognition as an educational system that could stimulate women empowerment. Hence, TVET has remain critical in the developmental agenda of developing economies as an educational system that could stimulate women empowerment on one hand and ensure high literacy on the other hand (UNESCO, 2012).

According to Edu and Edu (2012), the Federal Government of Nigeria, in recognition of the role of female education in the nation's development, thought it wise to include women in the quest for technical advancement. Therefore, government advocated for more women to enter new areas of technical education from which hitherto they had been excluded. Technical institutions which do not have facilities for female students were also encouraged to do so.

METHODOLOGY

Study Area

The study covered all the six geo-political zones of the country. The spread of TVET institutions selected for the study was based on the Nigerian Board of Technical Education (NBTE) register. These colleges and institutions include Polytechnics, Colleges of Agriculture, Monotechnics, Colleges of Health Technology, Technical Colleges, Technical Colleges of Education, Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institution (IEIs). The selected institutions reflect a diversity of disciplines and program types within Nigeria's TVET landscape.

Sampling

A total of 150 graduates were sampled in course of the study, and 118 valid responses were obtained, resulting in a response rate of 78.7%.

The study was carried out using purposive sampling technique to select respondents. This was to specifically target female e graduates who had completed at least one TVET program and had been in the workforce for not less than a year after graduation, thus allowing for reflection on employment and economic outcomes.

Sample Distribution

Geo-Political Zone	No. of Respondents
North Central	18
North East	15
North West	20
South East	17
South South	23
South West	25
Total	**118**

Data Collection

A structured questionnaire was developed, pre-tested on 12 participants (not included in the main sample), and refined for clarity and relevance. The instrument captured data on: Academic performance (final grades), Practical skill acumen (PSA), Empowerment outcomes (employment status, job level, income) and Economic contributions (job creation, revenue generation)

Missing data occurred on select variables due to non-disclosure (e.g., job level had responses from 65 of 118 participants) attributed to concerns about employer privacy, uncertainty about job titles, or discomfort with sensitive information. These were acknowledged during analysis and reported transparently.

Ethical Considerations

Ethical approval was obtained from the relevant Institutional Review Board. Informed consent, anonymity, and confidentiality were maintained throughout.

Data Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequencies and percentages for demographic and categorical variables. Inferential statistics like Pearson correlations and multiple regressions to explore relationships between skill acquisition, empowerment, and economic outcomes

To measure Practical Skill Acumen (PSA), the Holland *et al*. (2013) workforce productivity model was applied:

S=LE×HS = \frac{L}{E} \times HS=EL×H

Where:

S = Workforce Skill Level (i.e., human capital)
L = Skill-adjusted labour input
E = Total employment
H = Average hours worked

The model provides a dynamic and quantitative estimation of skill impact within a labour market framework. Unlike subjective skill-rating approaches, this model uses input-output productivity dynamics to assess human capital quality suitable for understanding economic contribution from skilled TVET graduates.

RESULT AND DISCUSSION

TVET remains an integral part of national development strategies in many societies because of its impact on human resource development, productivity and economic growth. This study unravels four main areas that TVET made impacts on the socio-economy namely through roles of TVET in the socio-economy; through skill contributions of TVET graduates; through empowerment of TVET graduates, and through contributions of TVET graduates to national economy.

Roles of TVET in the Socio-Economy

Respondents affirmed that TVET has positive contributions to female inclusion, job creation, entrepreneurship, and workforce readiness. Most graduates attributed their current professionalism to the practical and technical orientation of their training.

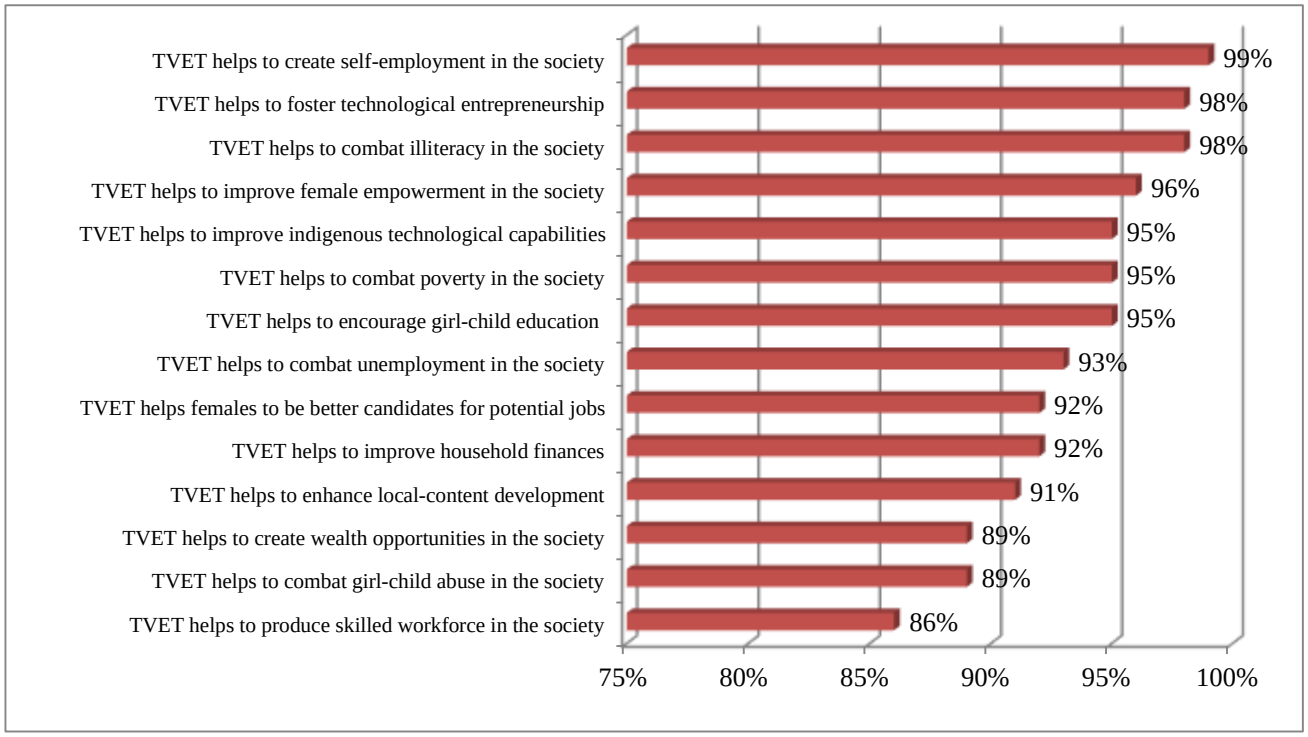

Figure 1: Roles of TVET in the Socio-Economy

Academic grades

The academic grade of the respondents is shown in Fig2 below, majority of the TVET graduates about 53% graduated with second class upper and its equivalent, about 27% graduated with first class and distinction while only 16% graduates with pass

Employment Levels

Of the 118 graduates, 65 responded to the job-level classification as shown in Table 1.

Practical Skill Acumen (PSA) Performance

The Practical Skill Acumen (PSA) of TVET graduates was assessed using a labor productivity indicator model (Holland *et al*., 2013), which

evaluated the skill-adjusted labor input relative to total employment and hours worked. Respondents were grouped into three PSA tiers based on self-reported labor productivity proxies and employment experience. Majority (62.7%) of the graduates had high PSA, suggesting that TVET institutions contributed quality, job-ready human capital to the Nigerian workforce.

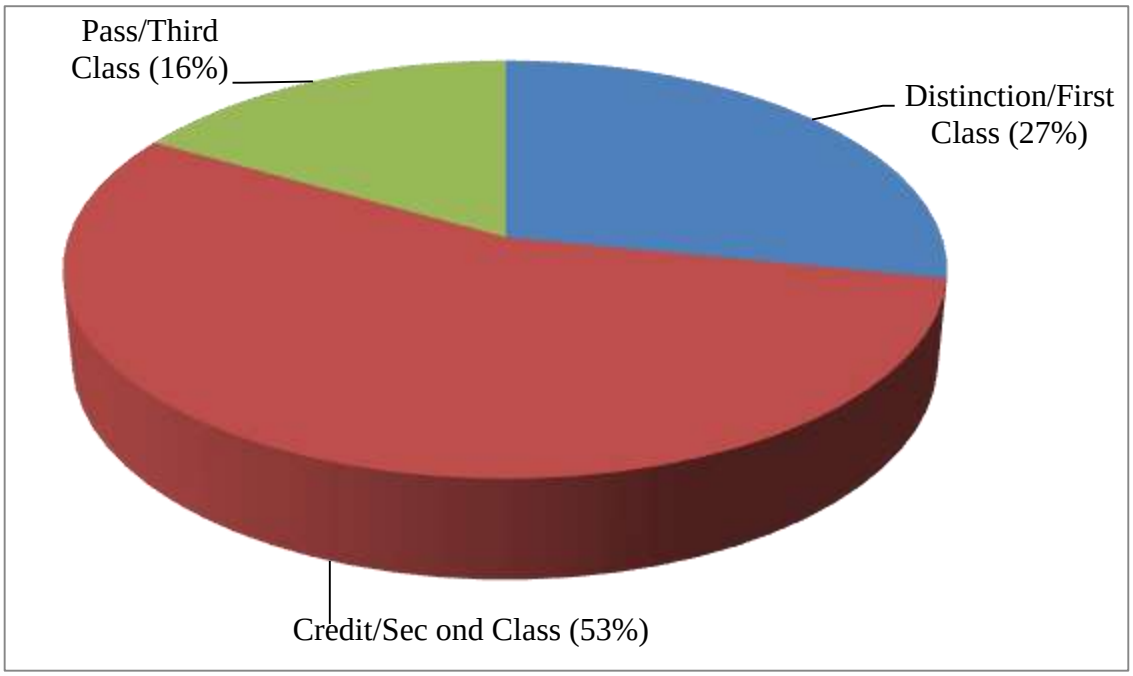

Figure 2: Academic grade of TVET Graduates

Table 1: Employment Levels of TVET Graduates

Job Levels	Frequency	Percentage
Junior Cadre	15	12.71
Middle Cadre	20	16.95
Senior Cadre	30	25.42

N=118

Table 2: PSA Performance Scale

PSA Performance Level	Number of Graduates	Number of Graduates
High	72	72
Moderate	34	34
Low	12	12
Total	118	118

Correlation Matrix of Academic Grades, PSA, and Income

Table 3 below presented the correlation matrix of academic grade, PSA and income, it was observed that there is a negative correlation between PSA performance and income levels (-0.18) which suggests that highly skilled graduates are either underemployed or occupying entry-level positions that do not reflect their full potential. This could be due to structural barriers in the labor market or the limited availability of higher-paying positions in certain sectors. There is also a negative correlation between academic grades and income (-0.14) which suggests that graduates with higher academic performance are not necessarily landing higher-paying jobs. This could be due to the oversaturation of certain academic fields, where employers prioritize practical skills over formal qualifications

Table 3: Correlation Matrix of Academic Grades, PSA, and Income

Variable	Academic Grades	PSA Performance	Income Level
Academic Grades	1.00	0.27*	-0.14
PSA Performance	0.27*	1.00	-0.18
Income Level	-0.14	-0.18	1.00

Significant at p< 0.05

CONCLUSIONS

Key Empirical findings

- Majority (62.7%) of female TVET graduates exhibited high practical skill acumen (PSA), indicating strong technical competence. Despite high PSA, only 38% reported financial empowerment, pointing to systemic economic constraints.
- Negative correlation was found between PSA/academic grades and income suggesting barriers outside skill/merit.
- A significant positive correlation existed between PSA and empowerment, especially job creation and career satisfaction.
- TVET played a clear role in fostering employability, self-confidence, and community impact, but fell short on economic inclusion. As all the factors examined as positive impacts/roles of TVET in the socio-economy were affirmed by high proportions of the respondents. This established TVET has having many developmental roles to play in the society. It highlights the wide range of positive impacts TVET made and its potential for bigger roles in the national socio-economy.

Implications for TVET Policy and Gender Programming

- TVET should not just be a training model, but a driver of inclusive economic development.
- Skill development must be paired with structural interventions like financing, mentorship, and market access.as it is insufficient alone
- There is a need for gender-transformative approaches in curriculum design, placement systems, and institutional culture.
- Policymakers should bridge the training-to-livelihood gap by embedding employment pipelines and entrepreneurial ecosystems.
- The disparity between skill and income underscores the importance of aligning TVET outcomes with national economic and industrial strategies.

RECOMMENDATION

Short-Term

- Integrate entrepreneurship and digital literacy into TVET curricula
- Launch job readiness and mentorship programs

Medium-Term

- Provide targeted financial support for female-led enterprises
- Build industry-TVET linkages for job placement and skills matching

Long-Term

- Mainstream TVET into industrial, innovation, and education policy
- Establish gender-responsive TVET centres of excellence

REFERENCES

African Development Bank. (2022). Skills for employability and productivity in Africa: The AfDB TVET strategy 2022–2026. https://www.afdb.org/en/documents

African Union (2007) Strategy to revitalize technical and vocational education and training (TVET) in Africa. Paper presented at the Meeting of the Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II+), Addis Ababa, May 2007.

Awotunde, A. (2000). Technical and vocational education for national development: Blueprint for the National Open University of Nigeria. Federal Ministry of Education.

Edu, D. O., & Edu, G. O. (2012). Vocational education of women: A tool for community and national development in Nigeria. Universal Journal of Management and Social Sciences, 2(2), 1–5.

Federal Government of Nigeria. (2021). National Development Plan (2021–2025). National Planning Commission. https://nationalplanning.gov.ng

Holland D., Liandze T., Rienzo C., and Wilkinson D. (2013).“The relationship between graduates and economic growth across countries”. BIS Research Paper No. 110. Department for Business Innovation and Skills (BIS) UK.

Ippen and Stodder (2003) Psychological effect of unemployment and underemployment in Nigeria.

King K, Palmer R (2010) Planning for technical and vocational skills development. Paris: UNESCO International Institute for Educational Planning.

Péano S, Vergel de Dios B, Atchoaréna D, Mendoza U (2008) Investment in technical vocational education and training (TVET) in the Philippines. Paris: International Institute for Educational Planning.

Salami, C. G. E. (2013). Youth unemployment in Nigeria: A time for creative intervention. International Journal of Business and Social Science, 4(7), 43–51.

Tripney J. S. and Hombrados J. G. (2013). "Technical and vocational education and training (TVET) for young people in low- and middle-income countries: a systematic review Here is a comprehensive lecture note for Module 4: Driving Change and Overcoming Resistance, tailored to the "Training Module on Public Sector Entrepreneurship and Innovation" by NACETEM.

UNESCO & ILO. (2002). Technical and vocational education and training for the twenty-first century: UNESCO and ILO recommendations. UNESCO Publishing.

UNESCO. (2012). Youth and skills: Putting education to work. Education for All Global Monitoring Report.

UNESCO-UNEVOC. (2020). Promising practices: Promoting inclusive TVET systems. https://unevoc.unesco.org/pub/promising_practices_inclusive_tvet.pdf

UNESCO-UNEVOC. (2023). Skills for a resilient youth: Trends and challenges in TVET. https://unevoc.unesco.org/publications

World Bank. (2021). Skills for jobs in Africa: Mobilizing the private sector for youth skills development. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/282341637234412683