UTILIZATION OF DIGITAL SKILLS AND AI IN TVET FOR JOB AND WEALTH CREATION: LEVERAGING UI/UX DESIGN

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Abstract

This paper explores the crucial role of digital skills and AI in transforming TVET for job and wealth creation in Nigeria, emphasizing UI/UX design. As the digital economy grows, TVET must adapt. This analysis highlights integrating digital literacy, AI tools, and UI/UX design to enhance employability and entrepreneurship. Utilizing AI for skill simulation and UI/UX for user-friendly platforms enables graduates to access digital careers and launch businesses. Focusing on Nigeria, challenges like awareness and infrastructure are addressed, with solutions via partnerships, training, and investment. Case studies and impact metrics are examined. Embracing digital skills in TVET is vital for Nigeria's youth and economic development.

Keywords: TVET, Digital Skills, Job & Wealth Creation.

1. Introduction

Digital transformation is reshaping economies worldwide, and TVET must evolve beyond its traditional association with trades such as carpentry, welding, and tailoring. In Nigeria, where youth unemployment remains a pressing issue, digital penetration and a growing tech sector offer new opportunities for empowerment. By 2027, more than 75% of jobs globally will require advanced digital skills (World Economic Forum, 2023), a trend consistent with UNESCO's call for just and sustainable transitions in vocational education (UNESCO, 2022). The African Union's continental TVET strategy (African Union Commission, 2014) and the European Skills Agenda (European Commission, 2020) both reinforce this urgency. Moreover, AI has been identified as a revolutionary force in vocational training, transforming skills acquisition and workforce readiness (Deckker & Sumanasekara, 2025).

In the 21st century, digital skills and artificial intelligence (AI) have emerged as critical drivers of innovation, employability, and economic growth. Technical and Vocational

Education and Training (TVET), traditionally centered on manual and hands-on skill acquisition, is increasingly required to adapt to the demands of the digital economy. This review explores the role of digital skills, particularly AI and User Interface/User Experience (UI/UX) design, in transforming TVET for job creation and wealth generation. Drawing from global strategies, empirical studies, and Nigerian initiatives, the paper highlights how AI and UI/UX enhance personalized learning, improve employability, and expand entrepreneurial opportunities. Evidence from recent literature shows that AI-driven assessment, digital simulations, and UI/UX training are reshaping vocational pedagogy across multiple contexts (Deckker & Sumanasekara, 2025; Rosyadi et al., 2023). TVET graduates increasingly access high-paying jobs, engage in freelancing platforms, and establish startups in fintech, e-commerce, and industrial services. Nevertheless, systemic challenges—including inadequate infrastructure, limited teacher capacity, and high software costs—continue to constrain effective integration, especially in developing contexts like Nigeria (Oyelere et al., 2025). Case examples such as Kenya's Ajira Digital Program and Malaysia's digital pedagogy reforms illustrate scalable models for Africa. The paper concludes that TVET's sustainability and relevance in the Fourth Industrial Revolution depend on embedding digital skills and UI/UX design in curricula, supported by government–industry collaboration, localized content, and robust monitoring frameworks.

2. The Shift toward Digital Skills in TVET

Digital skills are now considered as important as traditional vocational expertise. UNESCO's 2022 strategy on TVET emphasizes that graduates without digital competence risk exclusion from the labor market (UNESCO, 2022). In practice:

- **Construction**: Carpenters employ 3D modeling tools (AutoCAD, SketchUp) to minimize waste.
- **Fashion**: Designers apply UI/UX tools (Figma, Uizard) to expand into e-commerce markets.
- **Automotive**: Mechanics adopt AI-powered diagnostic tools to handle increasingly complex vehicles.

In Nigeria, these shifts are echoed in the National Digital Economy Policy and Strategy (NDEPS), aligning with broader frameworks such as the OECD Skills Strategy (OECD, 2019). Still, the gap between training institutions and workplace digital demands persists (Oviawe et al., 2017). Without systemic reform, Nigerian TVET graduates risk obsolescence in an evolving job market.

3. Artificial Intelligence as a Catalyst in TVET

Recent research shows that AI is transforming vocational pedagogy globally (Rosyadi et al., 2023; Oyelere et al., 2025). Its applications include:

1. **Personalized Learning** – Adaptive platforms tailor lessons to student needs.
2. **Automated Assessment** – AI reduces teachers' workload while providing instant feedback (JPTCP, 2022).
3. **Skill Simulation** – Virtual labs and welding simulators allow cost-effective and safe practice (Siemens, 2023).
4. **Accessibility** – Speech-to-text tools empower learners with disabilities (ILO, 2023).
5. **Labor Market Alignment** – AI monitors job market trends, ensuring curriculum relevance.

These functions ensure learners acquire future-proof skills. Importantly, Oyelere et al. (2025) argue that AI adoption in Nigeria's TVET could mitigate high youth unemployment if barriers such as infrastructure and awareness are addressed.

4. Role of UI/UX Design in TVET Transformation

UI/UX design is increasingly recognized as a driver of digital career pathways. Research indicates that user-friendly learning platforms improve engagement and retention (Adobe, 2022). Its benefits include:

- **Improved Learning Platforms** – Platforms with intuitive design increase adoption in e-learning (UNESCO-UNEVOC, 2023).

- **Industry Demand** – Employers in fintech, healthcare, and digital commerce prioritize UI/UX skills (Glassdoor, 2024).
- **Entrepreneurship** – Skills in UI/UX empower learners to develop apps, websites, and digital businesses.
- **Soft Skills Development** – UI/UX projects foster collaboration and problem-solving, aligning with OECD's (2019) emphasis on adaptability.

In Nigeria, UI/UX offers particular promise in fintech and e-commerce, where user-friendly solutions are critical to customer retention.

5. Job Creation and Entrepreneurial Opportunities

Evidence shows that TVET graduates with AI and UI/UX skills can access competitive global jobs, moving beyond traditional manual work (MDPI, 2025). For example:

- **Careers**: Roles include UX/UI designers, automation specialists, and digital marketers. Salaries in Nigeria's Lagos and Abuja tech hubs are increasingly competitive.
- **Freelancing**: Platforms such as Upwork, Fiverr, and Toptal create opportunities for remote income (Upwork, 2023).
- **Entrepreneurship**: AI and UI/UX enable startups such as virtual fitting rooms, AI-powered service booking apps, and vehicle maintenance chatbots.

As Oviawe et al. (2017) note, linking school training with workplace demands is essential for relevance. Thus, entrepreneurial pathways represent a way to bridge the persistent school-to-work gap.

6. Case Study: Kenya's Ajira Digital Program

Kenya's **Ajira Digital Program** trained more than 300,000 youths in freelancing, e-commerce, and UI/UX design (Ajira, 2023). Ajira proves that TVET digitization can scale youth employment and demonstrates how partnerships with global platforms can expand market access. Comparable initiatives in Malaysia show how AI-enabled

pedagogy supports inclusivity in vocational learning (Journal of Technical Education and Training, 2024). These cases provide models for Nigeria's integration of digital TVET.

7. Challenges to Integration

Despite the opportunities, significant challenges remain (UNESCO-UNEVOC, 2023; Oyelere et al., 2025):

1. **Awareness & Training** – Many Nigerian TVET educators lack digital competence.
2. **Infrastructure** – Poor electricity, limited internet, and under-equipped labs persist.
3. **Resistance to Change** – Traditional industries undervalue digital skills.
4. **Software Costs** – Professional UI/UX tools remain unaffordable for many learners.

These issues mirror global concerns identified in the ILO's lifelong learning framework (ILO, 2023) and the EU's skills agenda (European Commission, 2020).

8. Strategic Recommendations

- **Public–Private Partnerships**: Partner with Google Nigeria, Microsoft, Andela, and CcHub to support training.
- **Accessible Training**: Expand online learning via NITDA and UNESCO platforms.
- **Curriculum Reform**: Mandate digital literacy in all TVET programs, contextualized for Nigeria's economy.
- **Infrastructure Investment**: Provide solar-powered ICT labs, broadband, and affordable devices.
- **Localized Content**: Create learning resources in Hausa, Yoruba, and Igbo.

Such recommendations echo UNESCO's global frameworks for equitable and sustainable TVET (UNESCO, 2024).

9. Measuring Impact

Measuring effectiveness requires data-driven monitoring (Oyelere et al., 2025). Key indicators include:

- Number of graduates securing digital jobs or starting businesses.
- TVET institutions integrating AI and UI/UX in curricula.
- Regional growth in digital startups.
- Broadband expansion across schools.

10. Conclusion and Future Outlook

TVET must move beyond its manual training heritage into a digitally enriched system. AI and UI/UX represent transformative tools for employability, entrepreneurship, and inclusive growth. Nigerian reforms, if aligned with global strategies (UNESCO, 2016; UNESCO, 2022; UNESCO, 2024), can harness these technologies for job and wealth creation. Case studies such as Ajira in Kenya and Malaysia's digital pedagogy illustrate pathways to success. Ultimately, TVET modernization must be locally contextualized yet globally aligned, ensuring youth are equipped to thrive in the Fourth Industrial Revolution.

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