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Integrating Digital Learning into Vocational Training for Adult Learners in Nigeria

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Highlights:
Highlights Digital learning engagement in vocational training for adult learners in Nigeria for a technology-driven labour market.

Points at benefits include expanded access, acquisition of vocational and digital skills, and bridging of geographical barriers.

Enumerate key challenges which include poor infrastructure, unstable electricity, limited internet, and low digital literacy.

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Abstract: The rapid advancement of digital technology has transformed educational practices worldwide, creating new opportunities for teaching and learning. In Nigeria, vocational training remains a vital means of equipping adult learners with practical skills for employment, entrepreneurship, and lifelong learning. However, traditional vocational training methods often face challenges such as limited access, inadequate instructional resources, and inflexible learning schedules that may not suit adult learners. The paper sees the integration of digital learning into vocational training programmes for adult learners in Nigeria as a strategic approach to improving educational outcomes and workforce readiness. It examines the concepts of digital learning, vocational training, and adult education, highlighting the benefits of incorporating digital technologies into vocational instruction. It posits that digital learning can enhance accessibility, flexibility, learner engagement, and the acquisition of both vocational and digital skills. Furthermore, the integration of digital platforms can help bridge geographical barriers, support self-paced learning, and prepare adult learners for the demands of a technology-driven labour market. Despite challenges such as inadequate infrastructure, unreliable electricity supply, limited internet access, and insufficient digital literacy among instructors and learners, the paper maintains that these obstacles can be addressed through effective policies, investment in technological infrastructure, and capacity-building initiatives. It concludes that integrating digital learning into vocational training is essential for promoting inclusive education, improving employability, and fostering sustainable national development in Nigeria.

Keywords: Digital Learning, Vocational Training, Adult Learners, Employability, Digital Literacy.

Introduction

The rapid advancement of digital technologies has significantly transformed educational systems across the globe, creating new opportunities for teaching, learning, and skills development. Digital learning, which involves the use of information and communication technologies (ICTs) to facilitate education, has become an essential component of modern educational practice. According to UNESCO (2024), digital technologies have the potential to enhance the quality, accessibility, relevance, and inclusiveness of education while supporting lifelong learning opportunities for diverse groups of learners. The increasing demand for digital competencies in the contemporary labour market has further emphasized the need to integrate technology into vocational and technical education programmes. Vocational training plays a critical role in equipping individuals with practical skills, knowledge, and competencies required for gainful employment, entrepreneurship, and economic participation. UNESCO-UNEVOC (2024) notes that Technical and Vocational Education and Training (TVET)

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systems are increasingly expected to prepare learners for digitalized economies and emerging workplace realities. For adult learners, vocational training serves as a pathway for skill acquisition, reskilling, and upskilling, enabling them to adapt to changing labour market demands and improve their socioeconomic conditions.

In Nigeria, adult learners constitute a significant segment of the population seeking vocational education to enhance employability and productivity. However, many vocational training programmes continue to rely heavily on traditional instructional methods, which often limit access, flexibility, and learner engagement. Research has shown that the utilization of technology-enhanced learning tools in vocational education can improve instructional delivery and learning outcomes when effectively implemented (Ohanu and Osinem, 2024). Furthermore, initiatives aimed at improving the digital competencies of adult educators in Nigeria demonstrate a growing recognition of the importance of technology in adult and non-formal education (UNESCO, 2023).

Despite these developments, challenges such as inadequate digital infrastructure, unreliable electricity supply, high internet costs, and limited digital literacy continue to hinder the effective integration of digital learning into vocational training programmes. Nevertheless, the growing digitalization of workplaces and the increasing relevance of lifelong learning make the integration of digital learning into vocational education an urgent necessity rather than a choice. This paper therefore opined that integrating digital learning into vocational training for adult learners in Nigeria is essential for improving access to education, enhancing skill acquisition, promoting employability, and fostering sustainable national development in the twenty-first century.

Concept of Digital Learning

Digital learning refers to the use of digital technologies and electronic resources to facilitate teaching, learning, assessment, and communication in educational settings. It encompasses various forms of technology-enhanced learning, including online learning, e-learning, mobile learning, virtual classrooms, blended learning, and the use of digital platforms for instructional delivery. Digital learning leverages information and communication technologies (ICTs) to improve access to education, enhance learner engagement, and support the acquisition of knowledge and skills in flexible and innovative ways (UNESCO, 2024).

According to the Organisation for Economic Co-operation and Development (OECD, 2024), digital education encompasses all forms of teaching and learning that are enhanced by digital technologies, whether delivered fully online, through hybrid models, or via blended learning approaches. Digital learning environments make use of devices such as computers, smartphones, tablets, learning management systems, educational software, cloud-based applications, and artificial intelligence tools to facilitate effective learning experiences. These technologies enable learners to access educational content at any time and from virtually any location, thereby increasing flexibility and convenience, particularly for adult learners who often combine education with work and family responsibilities.

Digital learning can be categorized into several forms. These include online learning, where instruction is delivered through the internet; blended learning, which combines face-to-face and online instruction; mobile learning, which utilizes mobile devices for educational purposes; and virtual learning, which employs digital platforms to simulate classroom interactions. Each of these approaches seeks to enhance accessibility, engagement, and learning outcomes while meeting the diverse needs of learners.

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The significance of digital learning has increased considerably in recent years due to rapid technological advancements and the growing demand for digital competencies in the workplace. UNESCO (2024) observes that digital learning can enhance the quality and relevance of education, strengthen inclusion, improve educational management, and support continuity of learning during emergencies and disruptions. Furthermore, digital learning promotes learner-centred instruction by enabling self-paced learning, personalized learning experiences, collaborative activities, and immediate access to diverse educational resources.

In the context of vocational training for adult learners in Nigeria, digital learning provides opportunities for flexible skill acquisition, continuous professional development, and access to up-to-date industry knowledge. By integrating digital technologies into vocational education, learners can develop both occupational competencies and digital skills that are increasingly required in today's technology-driven economy. Therefore, digital learning represents a transformative approach to education that can contribute significantly to workforce development, employability, and sustainable national development.

Conceptualizing Vocational Training

Vocational training is a specialized form of education designed to equip individuals with practical skills, technical knowledge, competencies, and work-related attitudes required for specific occupations, trades, and professions. It is commonly referred to as Technical and Vocational Education and Training (TVET) and focuses on preparing learners for employment, self-employment, entrepreneurship, and lifelong career development. Unlike general education, which emphasizes broad academic knowledge, vocational training is primarily concerned with developing occupational competencies that enable learners to perform effectively in the workplace (UNESCO, 2025). According to UNESCO (2025), Technical and Vocational Education and Training (TVET) helps youth and adults acquire the abilities, knowledge, values, and attitudes necessary to obtain decent work and contribute meaningfully to society. Similarly, the International Labour Organization (ILO, 2025) defines vocational training as an educational process that provides learners with labour-market-relevant skills, promotes employability, and supports inclusive economic growth. These definitions highlight the role of vocational training as a bridge between education and the world of work.

Vocational training is characterized by its practical orientation and emphasis on skill acquisition. It combines classroom instruction with hands-on learning experiences, workshops, apprenticeships, industrial attachments, and workplace-based training. Through this approach, learners acquire both theoretical understanding and practical competencies that are directly applicable to occupational settings. UNESCO, the World Bank, and the ILO (2023) observe that effective TVET systems are demand-driven and aligned with labour market needs, ensuring that graduates possess skills that match current and future employment opportunities. Such alignment is increasingly important in a rapidly changing global economy shaped by technological innovation, globalization, and digital transformation (UNESCO, World Bank, & ILO, 2023).

Another important feature of vocational training is its contribution to economic development and social inclusion. Vocational education helps address unemployment, underemployment, and skills shortages by producing a competent workforce capable of supporting industrial growth and national productivity. According to the ILO (2025), inclusive TVET systems improve access to decent

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work, reduce inequalities, and contribute to resilient and productive labour markets. In Africa and other developing regions, vocational training has become a strategic tool for empowering youth and adults, promoting entrepreneurship, and facilitating sustainable development (ILO & African Development Bank, 2023).

Recent literature further emphasizes that vocational training is evolving beyond traditional skill acquisition to include digital competencies, innovation, and lifelong learning. Guan, Jin, and Tian (2025) note that vocational education is undergoing significant modernization as countries adapt their training systems to emerging technologies, industrial transformation, and changing workforce demands. Likewise, Parua and Yang (2024) argue that the digital transformation of TVET is necessary to prepare learners for Industry 4.0 and the digital economy. Consequently, contemporary vocational training not only equips individuals with occupational skills but also develops problem-solving abilities, adaptability, digital literacy, and entrepreneurial competencies needed in modern workplaces.

The Adult Learners

Adult learners are individuals who have attained a level of maturity and engage in educational activities for the purpose of acquiring knowledge, skills, attitudes, and competencies needed for personal, social, economic, and professional development. Adult learning occurs in formal, non-formal, and informal settings and is designed to meet the unique needs and interests of mature individuals. According to Ajayi (2018), adult learners are persons who participate in educational programmes after reaching adulthood and can make independent decisions regarding their learning needs and goals.

In the Nigerian context, adult learners are individuals who have passed the conventional school age but continue to seek learning opportunities to improve their literacy, vocational skills, occupational competence, and overall quality of life (Ezema, 2022). Such learners may include farmers, traders, artisans, civil servants, unemployed youths, and other members of society who require additional knowledge and skills to function effectively in their personal and professional lives.

Adult learners differ from younger learners in several ways. They bring a wealth of life experiences to the learning environment, which serves as a valuable resource for learning. Orobor et al. (2023) observed that adult learners rely heavily on their previous experiences when acquiring new knowledge and are more likely to engage in learning activities that have direct relevance to their immediate needs and responsibilities. Ogunyinka et al., (2024) asserted that this practical orientation makes adult learning more problem-centred than subject-centred.

Furthermore, adult learners are generally self-directed and motivated to learn because of specific goals they wish to achieve. Their motivation may stem from the desire to improve employment opportunities, increase income, acquire vocational skills, participate effectively in community affairs, or adapt to technological changes. Ayantunji (2023) noted that adult learners are often driven by internal motivations and are more committed to learning when they perceive its relevance to their personal and occupational aspirations.

Need for Integrating Digital Learning into Vocational Training for Adult Learners in Nigeria

The integration of digital learning into vocational training has become increasingly important in Nigeria due to rapid technological advancements, changing labour market demands, and the need for lifelong learning. Adult learners, who often combine education with work

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and family responsibilities, require flexible and accessible learning opportunities that traditional vocational training alone may not adequately provide. Digital learning, which involves the use of information and communication technologies (ICT), online platforms, mobile applications, and virtual learning environments, offers innovative approaches to skills acquisition and workforce development. In Nigeria, integrating digital learning into vocational training is essential for improving the quality, accessibility, and relevance of vocational education for adult learners. The following are some reasons for the need for integrating digital learning into vocational training for adult learners;

Promoting Digital Literacy and Employability

The contemporary labour market increasingly demands digital competencies across various occupations. Integrating digital learning into vocational training helps adult learners acquire essential digital skills alongside occupational competencies. Such skills include computer literacy, online communication, data management, and the use of digital tools relevant to specific trades. By developing these competencies, adult learners become more employable and adaptable to changing workplace requirements. Oyekunle, Gbenga-Julius, and Adeeko (2024) emphasized that digital integration in vocational education enhances learners' preparedness for modern workforce demands and improves their technological competence.

Supporting Lifelong Learning and Skills Development

In a rapidly evolving economy, workers must continually update their skills to remain productive and competitive. Digital learning supports lifelong learning by providing opportunities for continuous professional development and reskilling. The Nigerian Skills Qualifications Framework (NSQF) also emphasizes lifelong learning and flexible pathways for skills acquisition, making digital learning an important mechanism for achieving these objectives. Adult learners can access updated training content, industry certifications, and self-paced learning resources that facilitate continuous improvement.

Improving the Quality of Teaching and Learning

Digital technologies enhance instructional delivery through multimedia presentations, simulations, virtual laboratories, interactive assessments, and collaborative learning platforms. These tools make vocational training more engaging and practical, allowing learners to visualize complex procedures and practice skills in simulated environments before applying them in real-world settings. Research indicates that digital learning can increase learner engagement, improve understanding of technical concepts, and encourage active participation in the learning process.

Increasing Flexibility and Convenience for Adult Learners

Adult learners often have multiple responsibilities that make regular attendance at training centres difficult. Digital learning provides flexibility through asynchronous learning, recorded lectures, online discussion forums, and mobile learning applications. Learners can study at their own pace and schedule learning activities around work and family commitments. This flexibility contributes to higher participation rates and improved learning outcomes among adult learners.

The integration of digital learning into vocational training for adult learners in Nigeria is essential for improving access to education, promoting digital literacy, enhancing employability, supporting lifelong learning, and aligning training programmes with modern workforce requirements. As technology continues to reshape industries and workplaces,

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vocational education must evolve to equip adult learners with both technical and digital competencies. Effective implementation of digital learning in vocational training will contribute significantly to individual empowerment, workforce development, and sustainable national growth.

Challenges of Integrating Digital Learning into Vocational Training for Adult Learners

The integration of digital learning into vocational training for adult learners in Nigeria presents significant opportunities for skill development and employability, but it is also constrained by several persistent challenges. These challenges are multidimensional, involving infrastructural, pedagogical, socio-economic, and institutional factors. One major challenge is inadequate ICT infrastructure and poor access to digital resources. Many vocational training centres lack stable electricity, functional computers, and reliable internet connectivity, which are essential for effective digital learning delivery. Studies on vocational and technical education in Nigeria consistently show that infrastructural deficits remain a major barrier to successful digital integration (Oyekunle, Gbenga-Julius, & Dare, 2024). Without these basic facilities, adult learners are unable to fully engage with online platforms, simulations, or blended learning systems.

Another significant issue is low digital literacy among adult learners and some instructors. Many adult learners in vocational programmes are returning to education after long periods away from formal schooling, and they often struggle with basic computer skills. Similarly, some facilitators lack adequate training in digital pedagogy, which limits their ability to effectively integrate technology into instruction. Research in Nigerian adult literacy and vocational programmes shows that both learners and facilitators often have limited confidence in using digital tools (Andong et al., 2025).

High cost of digital access and maintenance also limits integration. Adult learners often cannot afford smartphones, laptops, or consistent data subscriptions required for online learning. Training centres themselves also struggle with funding to maintain equipment and software systems. This financial constraint widens the digital divide between urban and rural learners. Finally, policy and sustainability gaps hinder long-term implementation. Although digital learning initiatives exist, inconsistent funding, weak policy enforcement, and lack of coordinated national strategies often result in short-lived or poorly implemented programmes.

Innovative Strategies to Overcoming the Challenges of Integrating Digital Learning into Vocational Training for Adult Learners in Nigeria

1. **Improve Digital Infrastructure:** Government should invest in reliable electricity, broadband internet, and well-equipped digital learning centres, particularly in rural communities. Vocational training centres should have computer laboratories, projectors, and stable internet connections to facilitate effective online learning.

2. **Provide Continuous Digital Skills Training**: Adult learners and vocational instructors should receive regular training on the use of digital technologies, online learning platforms, virtual classrooms, and productivity software. Continuous professional development enhances confidence and competence in digital teaching and learning.

3. **Increase Government Funding:** Adequate funding is needed to procure digital equipment, maintain ICT facilities, subsidize internet access, and support innovation in vocational education. Public

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investment should also encourage partnerships with the private sector to improve digital learning infrastructure.

4. **Develop Affordable Internet Access:** Internet service providers should collaborate with government to provide affordable data packages for adult learners and vocational institutions. Free Wi-Fi hotspots in learning centres can further improve access to online learning resources.

5. **Adopt Blended Learning Approaches**: Combining face-to-face instruction with online learning helps accommodate adult learners who may have limited digital skills or inconsistent internet access. Blended learning also provides flexibility for working adults while maintaining practical vocational training.

Conclusion

The integration of digital learning into vocational training for adult learners in Nigeria is no longer a matter of preference but a critical necessity in response to the demands of the twenty-first-century knowledge economy. As the discussion in this paper has shown, vocational training remains a key driver of employability, entrepreneurship, and national development by equipping individuals with practical and occupationally relevant skills. However, the effectiveness of traditional vocational training approaches is increasingly limited by challenges such as inadequate access, inflexible learning structures, and insufficient alignment with modern workplace realities. In contrast, digital learning offers flexible, accessible, and innovative instructional opportunities that can significantly enhance the quality and reach of vocational education.

Adult learners, who often combine learning with work and family responsibilities, particularly stand to benefit from digital learning integration. Through digital platforms and technology-enhanced instruction, they can engage in self-paced learning, access diverse learning resources, and acquire both vocational and digital competencies essential for contemporary employment. This integration also supports lifelong learning by enabling continuous skills development in response to evolving labour market demands and technological advancements.

Recommendation

1. Vocational Training Centers facilitators should be regularly engaged in professional development programs to improve their competence in using digital tool in training.
2. Government in collaboration with private sector partners should prioritize the provision of stable electricity and ICT infrastructure across vocational training centers.
3. Stakeholders and government should introduce subsidies for internet data, provide low-cost or loan-based access to devices such as laptops and smart phones, and encourage partnership with telecom companies to create affordable educational data plans for adult learners in vocational institutions.
4. Government agencies responsible for vocational education should develop clear digital learning policies and ensure consistent funding, and monitor implementation across institutions.

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