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Perceived Impact of Lifelong Learning on Adult Learners' Employability in Technology-Driven Economies: Evidence from Borno State Agency for Mass Education

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Abstract

The study examined the perceived Impact of Lifelong Learning on Adult Learners' Employability in Technology-Driven Economies: Evidence from Borno State Agency for Mass Education. The objectives of the study were to; examine the extent to which lifelong learning programs influence the employability of adult learners, the technological skills acquired by adult learners through lifelong learning initiatives in a technology-driven economy and the perception of adult learners on the relevance of lifelong learning to securing employment in the modern labor market. The study adopted a descriptive survey research design. The population of the study was 198 adult learners selected from six centres using Krejcie and Morgan sampling techniques. The instrument used for data collection was a questionnaire. Four-point Likert type scale of Strongly Agree[1], Agree[2], Disagree[2] and Strongly Disagree[1] were used. The questionnaire was tested for its reliability coefficient of 0.76 achieved using Cronbach alpha. The data collected were analyzed descriptive statistics of frequency counts, percentages, and mean and standard deviation. Findings of the study revealed that; Lifelong learning programmes significantly improve the employability of adult learners, adult learners have acquired moderate levels of digital and technological skills through lifelong learning, adult learners perceive lifelong learning as highly relevant to gaining and sustaining employment in today's technology-driven economy. Based on the findings, the following recommendations were made; The government and relevant education agencies should increase funding and expand access to lifelong learning programmes, Stakeholders should strengthen the digital literacy component of lifelong learning by integrating hands-on ICT training, providing modern equipment and Curriculum developers and adult education planners should align lifelong learning programmes with current labor market needs.

Key: Lifelong Learning, Adult Learners, Employability, Technology-Driven Economy, Digital Skills, Adult Education.

Introduction

Lifelong learning is the continuous acquisition of knowledge and skills through formal, non-formal, and informal programmes, enabling adults to remain relevant in a rapidly changing economy. Employability denotes the knowledge, skills, and attributes that enhance adult learners' ability to secure, retain, and progress in jobs, particularly within technology-driven economies that demand digital literacy and adaptability. Adult learners are individuals aged 18 and above engaged in these programmes to improve their personal and professional development, while technology-driven economies provide the broader context where innovation and ICT shape labour market demands and determine the value of lifelong learning outcomes.

The twenty-first century is characterised by rapid technological advancement, globalisation, and shifting labour market demands, all of which underscore the need for continuous skill acquisition and adaptability. African countries face unique challenges in aligning lifelong learning with employability outcomes. While policies promoting lifelong learning exist, many African nations grapple with limited infrastructure, inadequate funding, and low digital penetration, which undermine the effectiveness of such initiatives (African Union, 2016). Studies in Nigeria, Ghana, and Kenya reveal that adult learners often acquire basic literacy and vocational skills but have limited exposure to advanced digital tools that are critical for modern employment (Yusuf, 2017; Akinyemi & Abiddin, 2013). This creates a gap between the competencies adult learners possess and the skills demanded in today's technology-driven labour market. As a result, many adult learners remain underemployed or excluded from opportunities in the formal sector.

Recent studies in Nigeria show that lifelong learning and digital literacy initiatives are gaining increased traction, particularly in adult education, as key strategies to enhance employability in a rapidly evolving technology-driven economy. For instance, the Unilorin Journal of Lifelong Education (2025) assessed the e-skills and digital literacy levels of the adult workforce and found that while many adults possess basic digital skills, there remain significant gaps in more advanced or specialised technologies that are increasingly required by employers. Similarly, the study Adult Education Programmes as a Tool for Promoting Digital Literacy among Adult Learners in Nigeria (2023) established that adult education programmes are useful in increasing ICT awareness and basic skill acquisition, but often fall short in providing hands-on or advanced training components. In addition, research such as Adult Learning and Digital Transformation in the 21st Century in Nigeria (2024) emphasises the urgency for adult learning programmes to evolve beyond traditional face-to-face delivery toward integrating digital technologies as the "new normal", particularly in response to the demands of globalisation and labour market shifts.

In Nigeria, recent studies have highlighted these trends: for instance, Assessment of Adult Workforce E-skill and Digital Literacy Level for Sustainable Development found that many adults presently demonstrate basic digital literacy, yet lack more advanced digital skills essential for competitiveness in modern workplaces (Apena, 2025). Likewise, Digital Literacy and Skills Development in Nigeria: Policies, Barriers and Recommendations analysed current educational policy frameworks and recommended that digital literacy is increasingly being viewed as a core competency for employability in Nigeria's

economy (Bello & Ajao, 2024). At the national level, lifelong learning programmes are being deployed to bridge skill gaps in Nigeria's digital economy. Studies such as Unlocking Opportunities: Exploring Success Factors and Challenges of Digital Integration in Vocational and Technical Education in Nigeria documented that digital integration efforts particularly amongst vocational and technical education have helped improve learners' readiness for technology-driven roles, though implementation remains uneven due to infrastructural and funding limitations (2024). Another recent study, Utilisation of Technology-Enhanced Learning Tools for Sustainable Skills Acquisition and Graduate Employability in Tertiary Institutions in Nigeria (2024), found that exposure to TEL (technology-enhanced learning) tools strongly correlates with improved employability among graduates when such tools are accessible and combined with relevant instructional support.

Within Borno State, the situational realities both underscore the need for such lifelong learning interventions and point to specific contextual factors that shape their impact. The State government has recently invested in vocational training enterprises, including workshops and ICT-training facilities in newly built vocational centres, to increase skill acquisition among youths and adult learners. However, the combination of infrastructural challenges such as unreliable power supply, limited internet access in many areas and ongoing security concerns continue to limit the effective implementation and reach of these programmes. Additionally, though there are political commitments (for example, skills acquisition programmes supported by the government and partnerships with agencies like UNICEF), there is sparse empirical evidence specifically examining how adult learners perceive the employability effects of lifelong learning in Borno State, especially regarding technological skills and alignment with modern labour market needs. This gap suggests a critical need for research focused on perceptions, skill outcomes, and the relevance of lifelong learning in Borno's particular social and economic environment. In Borno State, these national challenges are felt more acutely given its history of conflict and infrastructural deficits. While lifelong learning programmes through the Borno State Agency for Mass Education have aimed to provide adult learners with literacy, vocational, and some digital skills, there remains little empirical evidence on how learners themselves perceive the impact of these programmes on their employability especially in technology-driven sectors. Against the backdrop of recent national studies showing both promise and obstacles, it becomes essential to examine the extent to which lifelong learning contributes to employment outcomes for adult learners in Borno State, the specific digital competencies they acquire, and whether the programmes align with what the market presently demands.

Objectives

The objectives of the study were to;

1. examine how lifelong learning programs influence the employability of adult learners
2. the technological skills acquired by adult learners through lifelong learning initiatives in a technology-driven economy
3. the perception of adult learners on the relevance of lifelong learning to securing employment in the modern labor market

Research Questions

The following reach questions guided the study

1. To what extent do lifelong learning programmes influence the employability of adult learners?
2. What technological skills are adult learners acquiring through lifelong learning initiatives in a technology-driven economy?

3. How do adult learners perceive the relevance of lifelong learning to securing employment in the modern labour market?

Significance of the Study

This study is significant to; Adult learners, Adult educators, Government, Curriculum planners and Researchers. Adult learners will benefit by understanding how lifelong learning can enhance their employability, particularly by acquiring technological competencies relevant to the labour market. Adult educators and training institutions will gain insights into how lifelong learning programmes can be redesigned to focus more on digital literacy and practical technological applications. Government and policymakers will benefit from evidence-based recommendations to strengthen lifelong learning as a strategy for employment creation and economic growth. Curriculum planners will find the study useful in aligning lifelong learning programmes with the skills required in technology-driven economies. Researchers and academics will benefit from the empirical contribution of the study to the growing body of knowledge on adult education, lifelong learning, and employability in Africa.

Scope and Limitation

The study is delimited to adult learners enrolled in lifelong learning programmes organised by the Borno State Agency for Mass Education. Conceptually, it focuses on three major areas: how lifelong learning influences employability, the technological skills acquired by adult learners, and learners' perceptions of the relevance of lifelong learning in modern labour markets. Despite its importance, the study is subject to certain limitations. it is restricted to Borno State, it relies on self-reported data from adult learners, the study is time-bound and resource-constrained, which may affect the depth of data collection and analysis.

Literature Review

The study is anchored on Human Capital Theory, popularised by Becker (1993), provides the foundation for understanding lifelong learning as an investment that enhances individuals' productivity and employability. In technology-driven economies, lifelong learning enables adult learners to acquire digital and workplace-relevant competencies that improve labour market outcomes (Okoye & Nwankwo, 2022). Complementing this perspective, Knowles' Andragogy emphasises that adults are self-directed learners who are motivated to acquire knowledge and skills that address real-life challenges and employment needs (Knowles et al., 2020). Together, these theories suggest that adult education programmes should be relevant, practical, and aligned with learners' career aspirations.

Globally, lifelong learning is increasingly recognised as a key strategy for enhancing employability in knowledge-based economies. UNESCO (2020) noted that continuous learning promotes adaptability and enables individuals to remain competitive amid rapid technological changes. Empirical evidence supports this view, as Apena (2025) found that participation in digital literacy and e-skills programmes improved job readiness and entrepreneurial competence, while Bello and Ajao (2024) reported that digital literacy initiatives significantly enhanced employability among adult and vocational learners.

Career Development Theory, developed by Donald Super, views career development as a lifelong process rather than a single occupational choice made during youth. According to Super (1990), individuals progress through various developmental stages and continuously acquire skills, experiences, and competencies that shape their career paths. The theory emphasises that occupational development

is influenced by changing personal, social, and economic circumstances, making lifelong learning essential for career growth and adaptability (Patton & McMahon, 2021; Brown, 2021).

A central assumption of Career Development Theory is that self-concept influences career decisions and occupational success. Individuals seek careers that reflect their evolving self-perceptions, interests, and abilities. As people gain new experiences and learning opportunities, their self-concepts change, resulting in new career goals and aspirations. Consequently, continuous learning plays a critical role in helping individuals acquire competencies that support career advancement and long-term employability (Sharf, 2022; Patton & McMahon, 2021).

The theory further explains that individuals perform multiple life roles and must continuously adapt to environmental changes, including technological advancements and labour market transformations. In contemporary workplaces characterised by automation, digitalisation, and artificial intelligence, workers are required to engage in upskilling and reskilling to remain productive and employable. Therefore, lifelong learning programmes provide opportunities for adult learners to develop technological, problem-solving, and digital competencies needed for successful career transitions (Nauta, 2021; World Economic Forum, 2023; OECD, 2024).

The relevance of Career Development Theory to this study lies in its explanation of why adult learners participate in lifelong learning programmes. The theory supports the idea that learning continues throughout adulthood and remains necessary for maintaining employability in changing economic environments. Within the context of Borno State Agency for Mass Education, lifelong learning programmes serve as mechanisms through which adults acquire new knowledge and skills that enhance workforce participation and career progression (ILO, 2023; UNESCO, 2022; OECD, 2024).

Empirical studies consistently demonstrate the positive relationship between lifelong learning and employability. Mbagwu, Chukwuedo, and Ogbuanya (2020) found that lifelong learning propensity improved vocational training intentions and workforce adaptability, while Dosunmu (2020) reported that lifelong learning contributes significantly to human capital development and career advancement. Similarly, Okebiorun and Ige (2025), Ofoha (2025), and Olakulehin (2025) established that adult education, micro-credentials, and flexible learning opportunities enhance employability, digital competence, workplace readiness, and career mobility. However, most existing studies focused on university students, graduates, employees, and ODL participants, leaving limited evidence on adult learners in non-formal education centres. This gap justifies the present study on lifelong learning and adult learners' employability in the Borno State Agency for Mass Education, Nigeria.

Methodology

The study adopted a descriptive survey research design. The design was considered because it allows the researcher to collect data from a representative sample of adult learners regarding their perceptions, experiences, and outcomes of lifelong learning programmes. According to Creswell and Creswell (2018), survey research is useful for obtaining self-reported information on attitudes, practices, and opinions from a population. The population of this study comprised 394 adult learners. The sample size of 198 was determined using Krejcie and Morgan sampling techniques. Proportionate stratified sampling was employed to ensure fair representation of learners across the six centres.

Table 1: Sampling Distribution of Respondents

Centre	Population of Adult Learners	Sample Size
Centre 1	72	36
Centre 2	65	33
Centre 3	58	29

Centre	Population of Adult Learners	Sample Size
Centre 4	80	40
Centre 5	59	30
Centre 6	60	30
Total	**394**	**198**

Research Instrument

The main instrument for data collection was a structured questionnaire designed by the researcher. The questionnaire consisted of two sections. Section A focused on demographic information such as gender, age, and educational background. Section B contained 18 items structured around the three research objectives: A four-point Likert scale format of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1) was adopted. This scale was chosen to measure varying levels of agreement without providing a neutral option, thereby encouraging more decisive responses (Boone & Boone, 2012). The questionnaire was subjected to face and content validation by three experts in the fields of Adult Education and Educational Measurement and Evaluation at the University of Maiduguri. To establish reliability, a pilot test was conducted using 20 adult learners from a literacy centre not included in the main study. The responses were analysed using Cronbach Alpha, which produced a reliability coefficient of 0.76. According to George and Mallery (2019), a coefficient of 0.70 and above is considered acceptable for social science research, thus confirming the internal consistency of the instrument. The researcher personally administered the questionnaires with the assistance of trained research assistant.

Data collected were analysed using descriptive statistics such as frequency counts, percentages, mean and standard deviation. The decision rule for interpretation was set at a criterion mean of 2.50: any item with a mean of 2.50 or above was accepted as agreed, while items with a mean below 2.50 were rejected. This approach was chosen because it is appropriate for summarising perceptions and identifying patterns across the dataset (Field, 2018). The results were presented in tables for clarity and easy interpretation.

Results

Table 1: Perceived Extent to Which Lifelong Learning Programmes Influence Employability of Adult Learners

S/N	Item	SA	A	D	SD	Mean	STD
1	Lifelong learning programmes have equipped me with job-related skills.	62 (31.3%)	88 (44.4%)	30 (15.2%)	18 (9.1%)	3.01	0.94
2	Participation in lifelong learning increases my chances of employment.	70 (35.4%)	81 (40.9%)	28 (14.1%)	19 (9.6%)	3.02	0.97
3	Lifelong learning helps me remain relevant in the modern labour market.	64 (32.3%)	85 (43.0%)	30 (15.2%)	19 (9.6%)	2.98	0.96
4	Lifelong learning enhances my adaptability to changing work demands.	66 (33.3%)	84 (42.4%)	28 (14.1%)	20 (10.1%)	2.99	0.95
Mean					**3.00**		

Source: *Field survey 2025*

The table presents adult learners' responses on how lifelong learning programmes influence their employability. On the first item, "Lifelong learning programmes have equipped me with job-related skills", 31.3% strongly agreed and 44.4% agreed, giving a total of 75.7% who believed lifelong learning had a positive impact, while only 24.3% disagreed or strongly disagreed. The mean score of 3.01 (above the criterion mean of 2.50) confirms that most learners recognised lifelong learning as a tool for acquiring job-relevant skills. On the second item, "Participation in lifelong learning increases my chances of employment", 35.4% strongly agreed and 40.9% agreed, while only 23.7% disagreed. The mean of 3.02 with a standard deviation of 0.97 shows moderate consensus among respondents that lifelong learning enhances their employability prospects. Similarly, on the third item, "Lifelong learning helps me remain relevant in the modern labour market", 75.3% agreed/strongly agreed, yielding a mean of 2.98, which also indicates a positive perception despite slight variations in responses (STD = 0.96). For the fourth item, "Lifelong learning enhances my adaptability to changing work demands", 75.7% of respondents agreed or strongly agreed, with a mean of 2.99 and a standard deviation of 0.95. This implies that learners perceive lifelong learning as equipping them with flexibility to cope with technological and labour market changes.

Table 2: Technological Skills Acquired by Adult Learners through Lifelong Learning

S/N	Item	SA	A	D	SD	Mean	Std
1	I can use basic computer applications (MS Word, Excel, PowerPoint).	58 (29.3%)	84 (42.4%)	35 (17.7%)	21 (10.6%)	2.90	0.98
2	I can browse the internet and use email for communication.	61 (30.8%)	79 (39.9%)	36 (18.2%)	22 (11.1%)	2.90	0.99
3	I can use smartphones for learning and work-related purposes.	66 (33.3%)	78 (39.4%)	34 (17.2%)	20 (10.1%)	2.96	0.97
4	I have been exposed to online platforms for training and learning.	60 (30.3%)	80 (40.4%)	38 (19.2%)	20 (10.1%)	2.91	0.96
	Total Mean				**2.92**		

Source: *Field survey 2025*

The table presents responses on the range of technological skills adult learners reported acquiring through lifelong learning programmes. For the first item, "I can use basic computer applications (MS Word, Excel, PowerPoint)", 29.3% strongly agreed and 42.4% agreed, giving a total of 71.7% who affirmed competence in basic computer use, while 28.3% disagreed or strongly disagreed. The mean score of 2.90 (above the benchmark of 2.50) confirms that learners moderately developed computer literacy skills. On the second item, "I can browse the internet and use email for communication", 70.7% of respondents agreed or strongly agreed, compared to 29.3% who disagreed. The mean of 2.90 and standard deviation of 0.99 suggest a fair level of consistency in learners' reports of internet and email use. For the third item, "I can use smartphones for learning and work-related purposes", a slightly higher 72.7% agreed or strongly agreed, producing the highest mean score (2.96) in the table, showing that smartphone use was the most widely acquired digital skill among adult learners. Similarly, on the fourth item, "I have been exposed to online platforms for training and learning", 70.7% reported agreement

while 29.3% disagreed. The mean of 2.91 indicates moderate exposure, though not as strong as smartphone-based learning.

Table 3: Perception of Adult Learners on Relevance of Lifelong Learning to Employment

S/N	Item	SA	A	D	SD	Mean	Std
1	Lifelong learning is essential for gaining employment in today's economy.	72 (36.4%)	84 (42.4%)	28 (14.1%)	14 (7.1%)	3.08	0.93
2	Lifelong learning improves my chances of retaining employment.	66 (33.3%)	86 (43.4%)	28 (14.1%)	18 (9.1%)	3.01	0.94
3	Employers consider lifelong learning participation in recruitment.	60 (30.3%)	83 (41.9%)	35 (17.7%)	20 (10.1%)	2.92	0.97
4	Lifelong learning is highly relevant to succeeding in a technology economy.	70 (35.4%)	80 (40.4%)	30 (15.2%)	18 (9.1%)	3.02	0.96
	Mean				**3.01**		

Source: *Field survey 2025*

The table illustrates adult learners' perceptions of how lifelong learning relates to employment opportunities in a technology-driven economy. For the first item, "Lifelong learning is essential for gaining employment in today's economy", 36.4% strongly agreed and 42.4% agreed, giving a combined 78.8% positive perception, compared with only 21.2% who disagreed. The mean score of 3.08 (the highest in the table) confirms that learners strongly perceived lifelong learning as essential for employability. On the second item, "Lifelong learning improves my chances of retaining employment", 76.7% of respondents agreed or strongly agreed, while 23.2% disagreed or strongly disagreed. The mean score of 3.01 (STD = 0.94) suggests that learners viewed lifelong learning not only as a pathway to employment but also as a tool for sustaining career progression in competitive environments. For the third item, "Employers consider lifelong learning participation in recruitment", 72.2% of respondents agreed, whereas 27.8% disagreed. Although the mean of 2.92 was lower than the other items, it still indicates moderate agreement, reflecting some uncertainty about whether employers in Nigeria actively prioritise lifelong learning credentials in hiring decisions. Finally, the fourth item, "Lifelong learning is highly relevant to succeeding in a technology economy", recorded 75.8% agreement, with a mean of 3.02 and a standard deviation of 0.96. This shows that learners perceived lifelong learning as highly relevant to thriving in technology-driven economies where digital competencies and continuous learning are increasingly essential.

Findings

Findings from the study show that;

1. Lifelong learning programmes significantly improved the employability of adult learners.
2. Adult learners acquired moderate levels of digital and technological skills through lifelong learning.
3. Adult learners perceived lifelong learning as highly relevant to securing and sustaining employment in a technology-driven economy.

Discussion

This study found that lifelong learning programmes significantly enhanced adult learners' employability by equipping them with job-related skills, improving readiness for both formal and informal work. This aligns with Adekunle and Adeyemi (2022), who reported that adult learners who participated in vocational and ICT-based lifelong learning programmes in Lagos demonstrated improved employability outcomes, particularly in small business ventures. Similarly, Lawal and Haruna (2021) observed that participation in skill-development courses under the Nigerian National Mass Education Programme contributed positively to job-readiness and entrepreneurial capacity. Musa and Usman (2023) also confirmed that digital literacy training among adult learners in Borno State enhanced their confidence to seek employment in ICT-driven sectors. These findings reinforce earlier insights by UNESCO (2019), which emphasised lifelong learning as a global driver for employability and sustainable development.

Other studies highlight that the employability impact of lifelong learning is strongest when training is continuous and linked to labour market needs. Okebukola (2020) noted that short-term training often produces immediate but shallow employability outcomes unless reinforced with structured practice. Darling-Hammond et al. (2017) similarly argued that sustained professional development is more effective for workforce readiness. In a regional perspective, Eze and Nwachukwu (2020) identified that infrastructural gaps limit the scalability of such programmes, while Olaniran and Agbo (2020) stressed that instability in conflict-prone areas like Borno constrains the transition of learning into actual employment. Thus, while the current study affirms significant gains, it also highlights the broader need for systemic and sustainable programme design.

The study revealed that adult learners acquired **moderate levels** of digital skills, particularly in using basic computer applications, internet browsing, and smartphones for learning. This finding resonates with Yusuf and Adebayo (2021), who found that Nigerian adult learners improved in basic ICT competence but struggled with advanced tools such as online collaboration and digital assessment systems. Bello and James (2022) also reported that while learners in Maiduguri effectively adopted WhatsApp and multimedia tools, they were less confident with platforms like Google Classroom or Zoom. Similarly, Olaniran and Agbo (2020) argued that resource limitations and irregular internet connectivity restricted learners to functional rather than advanced ICT use. Internationally, UNESCO (2019) confirmed that in low-resource contexts, digital literacy development tends to plateau at foundational levels. Moderate acquisition of technological skills is often explained by gaps in programme delivery and resources. Adebayo and Abdulhamid (2021) stressed that many adult learning centres lack adequate infrastructure to support hands-on ICT practice, reducing the depth of skills acquired. Darling-Hammond et al. (2017) noted that without practice-oriented training, digital skills training results in surface learning only. In Nigeria, Abubakar and Hassan (2023) observed that although learners acquired basic digital skills, advanced competencies such as online research and content creation were underdeveloped. This supports the current study's conclusion that while lifelong learning boosts technological literacy, adult learners still operate at a moderate level due to systemic and resource-related barriers.

The study also found that adult learners strongly perceived lifelong learning as relevant to securing and sustaining employment in today's labour market. This corroborates findings by Okeke (2021), who reported that adult learners in Anambra State perceived lifelong learning as indispensable to employability in an ICT-oriented economy. Bello and James (2022) also found that learners attributed their increased job market confidence to lifelong learning participation. Musa and Ibrahim (2023)

highlighted that learners in Borno viewed digital literacy from lifelong learning as a gateway to modern employment opportunities. UNESCO (2019) likewise emphasised that lifelong learning is globally recognised as a critical pathway to employability and adaptability. However, other studies note a gap between perception and reality. Eze and Nwachukwu (2020) found that while adult learners believed lifelong learning improved their job chances, many struggled to translate these perceptions into actual employment due to lack of employer recognition of lifelong learning credentials. African Union (2016) similarly reported that across Africa, enthusiasm for lifelong learning coexists with structural barriers such as poor funding and weak industry partnerships. Olaniran and Agbo (2020) argued that insecurity and infrastructural challenges in Borno specifically limit the translation of lifelong learning into formal employment opportunities. Thus, while perceptions are strongly positive, there remains a need for better alignment of lifelong learning outcomes with labour market realities.

Summary

This study investigated the Perceived Impact of Lifelong Learning on Adult Learners' Employability in Technology-Driven Economies: Evidence from Borno State Agency for Mass Education. Specifically, it examined the extent to which lifelong learning programmes influence the employability of adult learners, the technological skills they acquire through such initiatives, and their perceptions of lifelong learning in relation to employment opportunities in modern labour markets. A descriptive survey design was adopted, and data were collected from 198 adult learners across six centres using a structured questionnaire validated with a Cronbach Alpha reliability coefficient of 0.76.

The findings revealed that lifelong learning programmes significantly improve adult learners' employability by equipping them with relevant job-related skills and enhancing their adaptability to modern workplace demands. Results further showed that while adult learners gained moderate levels of digital and technological competence such as computer literacy, internet use, and exposure to online platforms these skills were not fully advanced. In addition, adult learners strongly perceived lifelong learning as highly relevant to securing and sustaining employment in today's technology-driven economy, thereby underscoring its importance as a pathway to digital inclusion and lifelong empowerment.

Conclusion

Based on the findings, it can be concluded that lifelong learning plays a critical role in promoting adult learners' employability in technology-driven economies. The programmes offered by the Agency for Mass Education in Borno State have enhanced participants' job-related competencies and provided them with moderate levels of digital skills necessary for survival in the modern workplace. Moreover, learners expressed a strong belief in the relevance of lifelong learning for gaining employment, retaining jobs, and remaining competitive in the face of global technological advancement. However, the moderate level of digital skill acquisition suggests the need for more robust training, continuous practice-oriented programmes, and better resourcing of adult learning centres to ensure that learners are fully prepared for the demands of a digital economy.

Recommendations

Based on the findings the following recommendations were made;

1. Ministry of Education and the Borno State Agency for Mass Education should increase funding and expand access to lifelong learning programmes by providing adequate facilities, ICT tools, and sustainable infrastructure to strengthen the employability outcomes of adult learners.

2. Curriculum developers should align lifelong learning content with labour market demands by integrating practical, technology-oriented modules such as digital literacy, online collaboration, and entrepreneurship to ensure relevance in modern economies. Training institutions should strengthen the digital literacy component of lifelong learning through hands-on workshops, provision of modern ICT equipment, and continuous professional development for adult educators.
3. Adult learners should be encouraged to adopt a culture of self-directed lifelong learning by leveraging digital resources, online platforms, and open educational resources (OER) to enhance their employability skills beyond formal programmes.

References

Abubakar, A., & Hassan, M. (2023). The impact of ICT-based lifelong learning on adult learners in Borno State. *Journal of Adult and Continuing Education, 29*(2), 115–130.

Adebayo, O., & Abdulhamid, A. (2021). ICT infrastructure and adult learners' skill acquisition in Northern Nigeria. *Nigerian Journal of Educational Technology, 8*(1), 22–34.

Adekunle, A., & Adeyemi, T. (2022). Lifelong learning and employability: Evidence from vocational training programmes in Lagos State. *African Educational Research Journal, 10*(3), 142–153.

African Union. (2016). *Continental education strategy for Africa (CESA 16–25): Building skills for employability*. Addis Ababa: African Union Commission.

Akinyemi, A., & Abiddin, N. Z. (2013). Lifelong learning for sustainable development in Africa. *Mediterranean Journal of Social Sciences, 4*(14), 77–82.

Apena, A. (2025). Assessment of adult workforce e-skill and digital literacy for employability in Nigeria. *Unilorin Journal of Lifelong Education, 6*(1), 15–28.

Bello, A., & Ajao, K. (2024). Digital literacy and skills development in Nigeria: Policies, barriers, and recommendations. *Journal of Digital Education Policy, 12*(2), 66–82.

Bello, A., & James, F. (2022). ICT integration and employability skills among adult learners in Maiduguri. *International Journal of Continuing and Non-Formal Education, 15*(1), 55–68.

Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension, 50*(2), 1–5.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, CA: Sage.

Darling-Hammond, L., Hyler, M., & Gardner, M. (2017). *Effective professional development*. Palo Alto, CA: Learning Policy Institute.

Eze, C., & Nwachukwu, O. (2020). Barriers to ICT integration in adult education: Insights from Enugu State. *Journal of Educational Research and Practice, 10*(4), 34–46.

Eze, C., & Nwachukwu, O. (2021). Perceptions of lifelong learning and employability among adult learners in Enugu State, Nigeria. *Nigerian Journal of Adult Education, 28*(1), 77–91.

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Thousand Oaks, CA: Sage.

George, D., & Mallery, P. (2019). *IBM SPSS statistics 26 step by step: A simple guide and reference* (16th ed.). New York: Routledge.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2020). *The adult learner: The definitive classic in adult education and human resource development* (9th ed.). New York: Routledge.

Lawal, K., & Haruna, I. (2021). Adult education and employability in Nigeria: Evidence from the National Mass Education Programme. *Journal of Education and Society, 24*(1), 67–80.

Musa, I., & Ibrahim, A. (2023). Digital skills training and employability of adult learners in Borno State. *Nigerian Journal of Adult and Community Education, 41*(2), 101–115.

Musa, I., & Usman, Y. (2023). Lifelong learning and entrepreneurship capacity among adult learners in Northern Nigeria. *African Journal of Education and Skills Development, 12*(1), 77–89.

Ojo, T., & Akande, R. (2024). Utilisation of technology-enhanced learning tools for sustainable skills acquisition and graduate employability in Nigerian tertiary institutions. *African Journal of Educational Technology, 9*(1), 45–60.

Okebukola, P. (2020). Revitalising Nigerian education in the digital age. *Lagos Journal of Educational Studies, 5*(2), 1–15.

Okeke, J. (2021). Perceived impact of lifelong learning on employability among adult learners in Anambra State. *Journal of Adult Education Research, 19*(3), 58–72.

Okoye, K., & Nwankwo, C. (2022). Human capital theory and employability in Nigeria: The role of lifelong learning. *International Journal of Education and Development, 14*(2), 99–113.

Olaniran, S., & Agbo, A. (2020). Barriers to ICT adoption in adult learning in conflict-affected areas of Nigeria. *Education and Conflict Review, 12*(1), 90–104.

UNESCO. (2019). *Embracing a culture of lifelong learning*. Hamburg: UNESCO Institute for Lifelong Learning.

UNESCO. (2020). *Global report on adult learning and education: Leave no one behind*. Paris: UNESCO.

Yusuf, M. (2017). ICT and adult education in Nigeria: Prospects and challenges. *International Journal of Lifelong Education, 36*(5), 585–600.

Yusuf, T., & Adebayo, S. (2021). Adult learners' digital competence and lifelong learning in Nigeria. *International Journal of Educational Technology in Africa, 6*(1), 44–59.