

Impact of Artificial Intelligence skill-up educational programme on youth unemployment mitigation for community development in Imo State

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<https://doi.org/10.5281/zenodo.23287729>

Received: August 10, 2026 | Accepted: September 21, 2026 | Published: October 09, 2026

ABSTRACT

Youth are the largest active population of any nation, and they play substantial roles in achieving sustainable community development undertakings. However, some of the youth are underemployed, not in education, employment, or training (NEET). The study examined the impact of an artificial intelligence skill-up educational programme on mitigating youth unemployment for community development in Imo State. The study adopted a descriptive survey design, with a population of 6700 youth participants and a sample size of 469 selected using a proportionate sampling technique. The research instrument was a structured questionnaire titled "Artificial Intelligence Skill-up Educational Programme Questionnaire (AISEPQ)". Mean, standard deviation, and analysis of variance were used for data analysis. The findings indicate that artificial intelligence has increased youth confidence in competing for digital job opportunities, enabled them to access remote work and other digital employment opportunities more easily, given them a competitive advantage over other job seekers in the digital labour market, improved their chances of securing gainful employment that is directly aligned with the current job demands, and opened up employment opportunities that were previously unavailable. The study concludes that artificial intelligence boosted young people's confidence in pursuing digital job opportunities, facilitated their access to remote work and other digital employment options. It recommends that the Federal Ministry of Youth Development (FMYD), in collaboration with the Federal Ministry of Education (FME), sufficiently allocate resources for the transition period of the fourth and fifth industrial revolutions so that young people can meet the demands of a knowledge-based economy.

Keywords: Artificial Intelligence, Community development, Education, Skill-up, Youth unemployment

1. INTRODUCTION

Youth are a group of young people with burning desires, innovation, and untapped resources that need to be harnessed for effective community development activities in various communities across Imo State, Nigeria, and the contemporary society at large. Udegbulem and Enajerho-Packson (2025) observed that youth are the greatest active population of any nation, and they play substantial roles in achieving sustainable community development undertakings. However, some of the youth are underemployed, not in education, employment, or training (NEET), while the majority of them lack employability skills in this 21st-century, data-driven economy. According to the 2024 report of the Nigeria Labour Force Survey (NLFS), the high rate of youth unemployment is a call of concern with youth unemployment recording 8.3% in Q4 2022; 6.9% in Q1 2023; 7.2% in Q2 2023; 8.6% in Q3 2023; 8.4% in Q1 2024; and 6.5% in Q2 2024 (National Bureau of Statistics (NBS), 2024). Orji (2024) maintained that current scientific evolutions have broken up numerous antiquated work opportunities, labelling the present-day work setting as fast and tremendously dynamic, subsequently impacting the call for skilled labour.

The International Labour Organization (ILO) (2024) defined an unemployed person as an individual aged 15 or over who simultaneously meets three conditions: (i) being unemployed for a given week; (ii) being available to take a job within two weeks; (iii) having actively sought a job in the last four weeks or having found one starting in less than three weeks. Youth unemployment is the condition of youths with diverse backgrounds, willing and able to work but cannot find any (Igbokwe-Ibeto & Mac-Ozigbo, 2021). The consequences of youth unemployment in Nigeria have resulted in

disparaging activities such as violent crimes, militancy, restiveness, insurgency, kidnapping, political thuggery, banditry, and social delinquencies (Aliyu, Lawal, & Haruna, 2025; Abdullahi, Silas, & Pindiga, 2026). Youth development gained global attention following the 1965 UN General Assembly declaration (Hashim, 2014). In an attempt to mitigate the difficulties connected with youth idleness and lack of employability skills, authorities in different parts of the globe have identified digital and technological programmes as a remedy to youth unemployment. Oluwatayo and Mulweli (2025) maintained that investment in relevant 21st-century education technologies will equip youth to be nation builders and bridge the gap caused by skills deficit and mismatch, infrastructural decay, inadequacy of political will, and corruption.

The skill-up programme in the context of this study is artificial intelligence organized by the Imo State Ministry of Digital Economy & E-Government. Artificial intelligence (AI) is defined as “the tangible real-world capability of non-human machines or artificial entities to perform tasks, solve problems, communicate, interact, and act logically as it occurs with biological humans” (Zuniga, Goyanes, & Durotoye, 2024:4). AI impacts various fields, encompassing information and communication, social sciences, public health, education, and humanities. The United Nations Educational, Scientific and Cultural Organisation (UNESCO), in its 225th session of the Executive Board, described AI as the ability of machines to carry out several responsibilities that naturally call for human intelligence, such as reasoning, learning, and problem-solving (UNESCO, 2026). Here, AI is a component of the skill-up government-driven initiative aimed at assisting young people to earn a sustainable source of income by providing them with skills and upskilling opportunities that will reposition them to be gainfully employed and actively engage their services in the workforce for the realization of community development in Imo State. Therefore, the study is designed to ascertain the impact of an artificial intelligence skill-up capacity-building programme in mitigating youth unemployment for community development in Imo State.

Problem statement

In the world today, youth unemployment is a contemporary challenge affecting different societies. However, the rate of unemployment varies across nations. Youth unemployment in Imo State remains a persistent challenge affecting the advancement of community development activities, leading to various crimes such as identity theft, internet fraud, kidnapping, cyberbullying, prostitution, etc. Artificial intelligence skill-up educational programmes have been recognized as an apparatus for mitigating youth unemployment. The programme is designed to inculcate relevant technical, business, adaptability, problem-solving, advanced human skills, holistic skill profiling, and job matching abilities that will enable unemployed youth to become employable and overcome related work difficulties.

Research objective

- To find out the impact of the artificial intelligence skill-up educational programme on mitigating youth unemployment for community development in the study area.

Research question

- What is the impact of the artificial intelligence skill-up educational programme on mitigating youth unemployment for community development in the study area?

Hypothesis

H₁. There is no significant difference in the mean responses of the respondents based on employment level on the impact of an artificial intelligence skill-up educational programme in mitigating youth unemployment for community development in Imo State

2. CONCEPT OF ARTIFICIAL INTELLIGENCE (AI)

The concept of artificial intelligence (AI) originated with John McCarthy in 1956. McCarthy (2007:2) defined AI as “the science and engineering of creating intelligent machines”. However, AI failed to achieve its objectives, and between 1960 and 1970, researchers reconceptualized AI through the knowledge-based system (KB) and artificial neural network system (ANN) (Abduljabbar, Dia, Liyanage, & Bagloee, 2019). AI is the science and engineering of making intelligent machines that solve different kinds of problems using natural language processing, neural networks, and machine learning (Mondal, 2020). AI can be classified based on capabilities and functionalities. AI based on functionalities is discussed as: reactive machines, limited memory, theory of mind AI, and self-aware AI.

- Reactive Machines:** This is the first stage of any AI system with no memory and is designed to perform basic operations or specific tasks. (IBM, 2023; Johnson, 2024).
- Limited Memory:** These are AI systems that can recall past events and outcomes and monitor specific objects or situations over time (IBM, 2023). Three major kinds of machine learning models achieve this limited memory type:
 - Reinforcement learning.** These models learn to make better predictions through trial and error, to understand how to play games like Chess, Go, and Dota 2.

- b. Long Short-Term Memory (LSTMs). The LSTM model uses past data to predict the next elements in a sequence, referencing more recent information in the algorithm.
- c. Evolutionary Generative Adversarial Networks (E-GAN). The E-GAN model uses evolutionary algorithms to create a constantly improving learning process that allows the machine to explore options through a process of mutation and selection (Johnson, 2024).
- iii. **Theory of Mind AI**: This is a theoretical and functional type of AI structured to understand and interact with the thoughts and emotions of other entities, deduce human motives and reasoning, and analyse voice, images, and other kinds of data as technology evolves (IBM, 2023; Johnson, 2024).
- iv. **Self-aware AI**: refers to a functional AI class for applications that would possess super AI capabilities, which exists only as a concept and in science fiction stories (Johnson, 2024).

Types of AI based on capabilities are:

- i. **Artificial Narrow Intelligence (ANI)**: commonly known as machine learning and weak AI models are designed to perform a single, narrow or very specific task, often far faster and better than a human mind can, and do not have the capacity to learn (Sarmah, 2019).
- ii. **Artificial General Intelligence (AGI)**: AGI alludes to AI that has a “human level of cognitive function”, and is able to learn and mimic human thinking (Sarmah, 2019).
- iii. **Artificial Super Intelligence (ASI)**: This theoretical model aspires to surpass the capacities of human beings in using and synthesizing vast quantities of data and knowledge (Johnson, 2024).

Significantly, there are no generally agreed AI classification methods; however, the widely held AI methods are grouped under the captions of Artificial Neural Networks (ANN), Fuzzy Logic (FL), Meta-heuristics (MH), and Expert Systems (ES) (Perifanis & Kitsios, 2023).

- a. **Artificial Neural Networks (ANN)**, also known as neural networks or connectionist models, are defined as a technology based on studies of the brain and nervous system (Walczak & Cerpa, 2003).
- b. **Fuzzy Logic (FL)**: FL is a mathematical discipline that conveys approximate human recognition, and it is used for processing digital images, pattern recognition, and various control systems like elevators, power systems, and other home appliances (Amutha, Sharma, & Sharma, 2021).
- c. **Meta-heuristics (MH)**: MH are generic search methods that are used to solve challenging combinatorial or complex optimization problems that arise in engineering, business, industry, commerce, and many other areas (Hao & Solnon, 2020).
- d. **Expert Systems**: ES is an algorithm that is developed to mimic the problem-solving ability of a human expert in a specific area of expertise by using artificial intelligence (Abioye et al., 2020).

2.1. Role of Artificial Intelligence skill-up educational programme in mitigating youth unemployment

Kumar & Singh (2022) maintained that the goal of AI is to learn about reasoning, planning, knowledge acquisition, and the capacity to move around and deal with objects. Abduljabbar, Dia, Liyanage and Bagloee (2019) acknowledged AI as a broad area of computer science that makes machines function like a human brain. It allows computers and machines to imitate human abilities such as learning, problem-solving, decision-making, and creativity (IBM, 2024). Also, it is used to address issues that are difficult to clarify using traditional computational techniques. Dharamsi, Navale and Jambhekhar (2023) considered AI as a smart helper that makes our daily tasks easier through internet surfing, digital assistants, online shopping, etc. There has been some argument against and for AI as a threat and a remedy to the unemployment crisis. Wong (2024) argues that the integration of AI into workplaces poses risks of job displacement and redundancy. Some contend that AI is comparable to preceding technologies that did not result in enormous unemployment; others debate that AI is a different class of technology, can perform cognitive work, and thus warrants new consideration (Frank, Ahn, & Moro, 2023). Furthermore, Liang (2024) demonstrated that AI incorporation into industries has had a significant impact on employment, with the computerization of monotonous tasks resulting in job displacement. Guliyev (2023) found that AI decreases the level of unemployment, and the displacement effect of AI is authenticated.

2.2. Unemployment

The National Bureau of Statistics described unemployment as the percentage of the workforce that was ready to work but did not engage in at least 37 hours of employment during the week prior to the survey period. Unemployment covers misuse or underuse and disuse of significant portions of job-ready and competent individuals in a given society (Samaila, 2019). The International Labour Organization (ILO) characterizes youth unemployment as the proportion of individuals aged 15-24 within the labor force who are currently jobless, yet available for and actively looking for work (ILO, 2021). Calculating the unemployment rate involves classifying who is in the labour force. The labour force comprises individuals who are either employed or unemployed Reserve Bank of Australia, 2001–2026. Some measures of unemployment contain additional groups, such as depressed labourers who are not seeking work and those who are working less than

full-time despite their desire to have full-time roles (Maryville University 2022). In Nigeria, many young people have low access to formal education, and literacy rates among young people aged 15 to 24 years (estimated at 78.6%) remain the lowest in the world (Statista, 2022). Igboke-Ibeto and Mac-Ozigbo (2021) argue that the country's high rate of youth unemployment is due to the negative correlation between the education system and the technical skills needed in the labour market. Adunola (2020) pointed out the following as some of the effects of youth unemployment:

- i. It can lead to increased vulnerability of young people, making them turn to drugs and crime
- ii. Youth unemployment can generate frustration and low self-esteem.
- iii. Youth unemployment can also expose them to greater risks of lower future wages, repeated periods of unemployment, longer unemployment spells, and income poverty.
- iv. Youth may not be accorded recognition meant for them, just as women are said to have been marginalized in so many areas.
- v. It can impose a high economic cost on society, and the public will bear the brunt. Youth unemployment will surely not force them out of society; they will continue to consume and not contribute to the economy, but live at the expense of the public.

2.3. Community development

Community development, according to Aruma (2015), is the process by which members of participating communities combine their efforts with those of governmental bodies, corporations, non-governmental organisations (NGOs), affluent individuals, and other pertinent stakeholders with the ultimate goal of enhancing people's living conditions in the participating communities. Community development is essential for achieving sustainable development, emphasizing the role of people as the foundation of successful development efforts (Udegble, Samuel-Ihemejeh, & Hanachor, 2025). The essence of community development is sustainability, which encapsulates the reasons for citizens' conscientization, sensitization, and active participation in promoting and maintaining sustainable, high-quality living conditions (Okafor, 2024). Msombaon (2021) identified seven phases that constitute the community development process as:

- i. Situational analysis to assess needs and problems
- ii. Identification and prioritization of key needs and problems
- iii. Establishment of a community development committee to represent the community
- iv. Planning by the committee to establish objectives and plans to address priority needs
- v. Implementation of plans to work on development needs and problems
- vi. Adjustment of plans if needed during implementation
- vii. Evaluation of progress by the community developer and committee through monitoring and assessment.

3. RESEARCH METHOD

The study adopted a descriptive survey design because it aims to accurately and methodically define the population and the situation of things. Siedlecki (2020) defines a descriptive study as a non-experimental methodology that analytically detects and records population's features, proficiencies, behaviours, or the distribution of a phenomenon without influencing the condition being studied. The population of the study comprises 6700 youth participants in ten skill-up capacity-building centres of the state. A sample size of 469 respondents, representing seven per cent of the population, was selected using a proportionate sampling technique, and the research instrument was a structured questionnaire titled "Artificial Intelligence Skill-up Educational Programme Questionnaire" (AISEPQ). A pilot study was carried out with 30 youth participants in an artificial intelligence capacity-building programme outside the study area. The reliability coefficient of 0.83 was obtained using Cronbach's alpha. The researchers administered 469 copies of the questionnaire to the respondents. Forty (40) copies of the questionnaire representing 8.53 per cent were not returned, while four hundred and twenty-nine (429) copies representing 91.47 per cent of the questionnaires administered were returned. Out of the 429 returned, nine (9) copies representing 2.10 per cent were not correctly completed. Four hundred and twenty (420) copies representing 97.90 per cent were correctly completed. Therefore, 420 copies of the questionnaire were used for analysis of data to answer the research question. The mean and standard deviation were used in answering the research questions, while ANOVA was used in testing the hypothesis at the 0.05 level of significance.

4. DATA ANALYSIS

Table 1: Impact of artificial intelligence skill-up educational programme on mitigating youth unemployment for community development in the study area.

S/N	ITEM	SA 4	A 3	D 2	SD 1	N	$\bar{X}$	SD	DECISION
1	Through the Skill-Up Imo Programme, acquiring knowledge in Artificial Intelligence (AI) has increased my confidence in competing for digital job opportunities.	200 800	102 306	80 160	38 38	420 1304	3.10	1.01	Agree
2	Participation in the Skill-Up Imo Programme has enabled me to leverage AI innovations to access remote work and other digital employment opportunities more easily.	185 740	150 450	70 140	15 15	420 1345	3.20	.843	Agree
3	As a beneficiary of the Skill-Up Imo Programme, mastering AI tools has given me a competitive advantage over other job seekers in the digital labor market.	109 436	173 519	91 182	47 47	420 1184	2.81	.945	Agree
4	Engagement in AI-related training under the Skill-Up Imo Programme has significantly improved my chances of securing gainful employment.	182 728	91 273	80 160	67 67	420 1228	2.92	1.12	Agree
5	AI competencies acquired through the Skill-Up Imo Programme are directly aligned with the current job market demands within my community.	150 600	110 330	97 194	63 63	420 1187	2.82	1.08	Agree
6	Through the Skill-Up Imo Programme, my exposure to AI tools has opened up employment opportunities that were previously unavailable to me.	114 456	201 603	55 110	50 50	420 1219	2.90	.933	Agree
Average Mean							2.95		

The data in Table 1 show that the respondents agreed with all the items on the impact of the artificial intelligence skill-up educational programme on mitigating youth unemployment for community development with mean scores of 3.10, 3.20, 2.81, 2.92, 2.82, and 2.90, respectively.

Based on a criterion mean of 2.5 and above, the following are considered to be the impact of the artificial intelligence skill-up programme on mitigating youth unemployment for community development in Imo State:

- Artificial intelligence increases youth confidence in competing for digital job opportunities.
- Artificial intelligence enables youth to access remote work and other digital employment opportunities more easily.
- Artificial intelligence gives the youth a competitive advantage over other job seekers in the digital labour market.
- Artificial intelligence significantly improves the chances of securing gainful employment.
- Artificial intelligence directly aligns with the current job demands within communities in Imo State.
- Artificial intelligence opens up employment opportunities that were previously unavailable.

The average mean of 2.95 confirms the affirmative response of the respondents on the impact of the artificial intelligence skill-up educational programme on mitigating youth unemployment for community development in Imo State.

Table 2: Summary of ANOVA table showing employment level on impact of artificial intelligence skill-up educational programme

Source of Variation	Sum of Squares	df	Mean Square	F	Sig
Between Groups	1.227	2	.638	.020	.981
Within Groups	13617.130	417	32.655		
Total	13618.407	419			

The results in Table 2 show that there was no significant difference in the mean response of the respondents based on employment level on the impact of the artificial intelligence skill-up programme in mitigating youth unemployment for community development in Imo State [$F(2, 417) = .020$; $p > .05$]. The result shows that the ANOVA value ($F = .020$) was not statistically significant at .05, because the sig value was .020. This means that artificial intelligence skill-up has an impact across all the levels of employment among youths in Imo State. Based on this result, hypothesis one, which stated that 'there is no significant difference in the mean responses of the respondents based on employment level on the impact

of artificial intelligence skill-up educational programme in mitigating youth unemployment for community development in Imo State was therefore accepted.

5. FINDINGS AND DISCUSSION

The data analysed in Table 1 for answering the research question indicated that the respondents agreed with all the items on the impact of the AI skill-up educational programme on mitigating youth unemployment for community development in Imo State. The results exhibited that AI has increased youth confidence in competing for digital job opportunities, enabled them to access remote work and other digital employment opportunities more easily, gave them a competitive advantage over other job seekers in the digital labour market, improved their chances of securing gainful employment that is directly aligned with current job demands, and opened up employment opportunities that were previously unavailable within communities in Imo State. The aforesaid findings indicated that the impact of the AI skill-up educational programme has positively impacted the mitigation of youth unemployment for community development in Imo State. The findings of OECD (2024) among vulnerable youth in Spain were in agreement with the above findings, which revealed that generative AI enhances youth capability and employability across different sectors. Their findings further indicated that generative AI equipped youth with essential tools for their future careers and unlocked hidden digital talent. The findings of Mokonyane-Motha and De Jager (2023) showed that AI develops graduates' skills to address the skills needs of unemployed graduates. Also, Udoji's (2025) findings indicated that AI emerges as a transformative tool poised to reshape the nation's employment landscape. Findings of Sydoruk (2024) demonstrated that through AI online courses, mentoring programmes, and specialized training, people have acquired necessary knowledge and skills to successfully enter the labour market of a new country. Sydoruk's findings further indicated that AI has facilitated the integration of immigrants into socio-economic conditions and the reduction of unemployment.

The data in Table 2 for testing the hypothesis indicated that there was no significant difference in the mean response of the respondents based on employment level on the impact of artificial intelligence skill-up educational programme in mitigating youth unemployment for community development in Imo State. Frank, Ahn and Moro (2023) reported similar findings, which are in consonance with the present study that AI impact discernment is standardised, and there is no significant difference across labour groups. Additionally, findings of Marguerit (2025) showed that there are no significant differences in employment levels between groups exposed to AI and those less exposed.

6. CONTRIBUTION OF THE STUDY

The study provides empirical evidence that youth unemployment can be reduced to the barest minimum through the artificial intelligence skill-up educational programme for promoting community development in Imo State.

7. IMPLICATION OF THE STUDY

Development stakeholders and educational curriculum creators should move from the old-fashioned occupational skills to digital and artificial intelligence-driven skills that support the demands of the current labour market. This will strengthen the educational system, alleviate youth restlessness, and foster economic self-reliance.

8. RECOMMENDATION

In line with the findings, the study recommends that the Federal Ministry of Youth Development (FMYD), in collaboration with the Federal Ministry of Education (FME), needs to sufficiently allocate resources for the transition period of the fourth and fifth industrial revolutions so that young people can meet the demands of a knowledge-based economy.

9. CONCLUSION

The research demonstrated that artificial intelligence boosted young people's confidence in pursuing digital job opportunities, facilitated their access to remote work and other digital employment options, provided them with a competitive edge compared to other job applicants in the digital labor market, enhanced their likelihood of obtaining meaningful employment that aligns with current job requirements, and introduced job opportunities that were not accessible before.

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