**AI MAY LOWER YOUTH UNEMPLOYMENT IN AFRICA: A CASE STUDY OF NIGERIA**

1. **INTRODUCTION**

Africa is known to be one of the youngest populations in the world. Due to this, youth unemployment is known as one of the continent's most pressing challenges. Traditional sectors such as agriculture, manufacturing, and services are unable to absorb the large numbers of young job seekers. Consequently, many young people are left without sustainable employment, contributing to poverty and social unrest. However, advancements in technology, particularly Artificial Intelligence (AI), present an opportunity to solve this challenge. Artificial intelligence which includes technologies such as machine learning, robotics, and data analytics, is rapidly transforming industries across the globe. In Africa, it has the potential to create new job opportunities, streamline existing industries, and equip young people with the skills necessary to participate in the digital economy. Nigeria has the foremost economy in West Africa and one of the most vibrant on the African continent. Notwithstanding its vibrancy, the nation has seen a notable increase in inflation and a decline in total growth over the last five years, reaching a peak of just 1.5% (WB, 2021). This leads to a high unemployment rate of approximately 33%, which includes 22.8 percent underemployment and 53% youth unemployment (AFDB, 2021). Self-employment and entrepreneurship are the most common forms of employment in this country. As technology continues to transform the workplace, its potential to reduce youth unemployment has attracted a lot of attention. This study explores the role of technology in reducing youth unemployment, with a focus on the efficacy of technology-driven youth employment policies. Youth unemployment is a global problem that exacerbates social and economic instability. Our scope of the study among the African countries is Nigeria.Nigeria is facing a significant challenge of youth unemployment, with over 50% of its youth population (15-35 years) unemployed or underemployed (National Bureau of Statistics, 2020). The government has implemented various youth employment policies to address this challenge. However, the impact of these policies has been limited, and technology has been identified as a potential solution to reducing unemployment.

Youth unemployment in Nigeria’s is a pressing socioeconomic challenge, hampered by lack of skill alignment with changing job market demands. Despite the potential of Artificial Intelligence (AI) as a driver of economic growth and job creation, there remains a skills gap among young people. This gap not only worsens unemployment rates but also limits the country capacity to tap into developing technical industries and diversify its economy. To address this issue, a systematic advocacy effort is needed to promote AI skill acquisition as a viable alternative for empowering young people, encouraging entrepreneurship, and driving long-term economic development. To change the living conditions and mentality of youths from total dependence on menial jobs and employment in basic government parastatals and sectors to a productive economy that will enhance viable skills, decent job placement, and social protection for self-reliance and job creators. According to the World Economic Forum, the top three skills required to thrive in this century include Complex problem-solving, Critical thinking, and Creativity as this is necessary for the youth to be able to contribute and thrive in this century.

Riju Aikkal(2024). explores the dual impact of AI on youth employment, focusing on the medical field. It analyzes the challenges posed by job displacement and skill gaps, as well as the opportunities arising from emerging roles in healthcare. A case study on AI-driven diagnostics highlights the practical implications and strategies for young professionals to adapt to the changing landscape

Ajose and Oladipupo (2020) reveal why African youth are resilient and possess enormous potential, which, if properly harnessed, would enable them to fit into the emerging landscape of Artificial Intelligence

Magdeline and Thelma (2024) detected that unemployed graduates were aware of what AI is, but 30% were unaware that they were using it daily. The need for practical application of curricula and AI activities should be integrated into higher education courses to develop creative, critical thinking, problem-solving, and entrepreneurial skills. Effective training of both educators and students in AI is required. It was also found that the self-esteem and self-actualization needs of graduates might be impacted negatively by unemployment, and that AI might be used to retrain and develop graduates’ skills to address the skills needs of unemployed graduates. Curricula and teaching should be linked to AI activities so that students can stay abreast with the global needs and those of their local community, and employ entrepreneurial, critical thinking, and problem-solving skills in their study fields.

Yeboah (2023) suggest that artificial intelligence has a strong positive impact on employment, while revenue demonstrates a moderate positive effect. On the other hand, political stability appears to have a negative impact. The paper makes a valuable and timely contribution to the existing literature on the subject of artificial intelligence’s impact on employment in Africa. The paper concludes by providing suggestions on how to effectively harness AI’s creative effects to counteract its negative consequences and utilize AI to reduce corruption and create sustainable employment for African economies.

Kasari (2023). Findings from panel data analyses conducted with data compiled from the World Bank and OECD reveal that the relationship between artificial intelligence advancement, specifically measured through patent filings, and unemployment rates is complex. Due to variations in AI development among the countries under investigation, it is observed that AI development has a modest positive effect on unemployment rates among the countries studied. Furthermore, the study reveals that the displacement effect of AI development on employment is less significant for older workers with tertiary education compared to younger workers. Lastly, the rates of research and development (R&D) investment exhibit substantial variation among countries, which hinders the establishment of a definitive relationship. Therefore, this research does not emphasize the relationship between R&D expenditure as a percentage of GDP and the effects of AI on unemployment rates.

According to Acemoglu and Restrepo (2020), AI's global impact on employment shows a pattern of both job displacement and creation, with its effects largely dependent on national readiness and sector-specific applications. In African economies, Oyelaran-Oyeyinka (2021) emphasizes that AI can complement rather than replace labor, particularly in informal and semi-formal sectors common in Nigeria.

In addressing Nigeria’s 40% youth unemployment rate (National Bureau of Statistics, 2023), Ejiogu and Oduh (2022) argue that innovation and technology must be integral to policy responses. AI-powered agricultural platforms such as Thrive Agric and FarmCrowdy exemplify this integration, aligning with findings by Klerkx and Rose (2020), who note that AI-driven agriculture can modernize farming and engage youth.

Educational reform is also vital. Soni and Okunoye (2021) demonstrate how AI-facilitated personalized learning can improve digital skills among Nigerian youth, aligning education more closely with job market demands. Platforms like uLesson and AltSchool Africa are putting this into practice.

Moreover, Adegbite et al. (2022) argue that AI reduces barriers for young entrepreneurs, offering affordable access to tools for automation, finance, and market analytics. However, Olabode (2021) warns that without substantial investment in infrastructure and digital literacy, Nigeria risks widening inequality through uneven AI adoption.

Digital skills have been identified as a key factor in increasing employment opportunities for youth in the global world. Digital Skills Observatory found that digital skills are in high demand by employers in Nigeria, but many young people lack the skills and training needed to compete in the digital economy (DSO, 2020). Another study by the African Development Bank found that investments in digital skills training can increase employment opportunities for young people in Nigeria by providing them with the skills and training needed to compete in the digital economy (AfDB, 2020).

A National Bureau of Statistics (2020) study found that the main challenges of leveraging technology to reduce unemployment in Nigeria were a lack of digital infrastructure, skills, and access to digital platforms. A study by the World Bank (2019) found that the main opportunities for leveraging technology to reduce unemployment in Nigeria were providing digital skills training, creating digital job opportunities, and providing entrepreneurship support

The remainder of this structure is structured as follows. Section 2 describes the methods i.e the model used for the analysis as well as the tools used in obtaining the results, how artificial intelligence may reduce unemployment in Africa. Section 3 presents the results. section 4 concludes by deriving a role for policy in addressing the impact of artificial intelligence in reducing youth unemployment in Africa.

1. **METHODOLOGY**

The methodology used in this paper combines quantitative and qualitative analysis. The quantitative analysis is done by using the data derived from the primary sources to analyze results gotten from questionnaires with the use of SPSS, while the qualitative data analysis is derived from the use of secondary data to look at how technology has aided development in the past few years in the country through EVIEWS.

**RESEARCH DESIGN**

The study utilizes a descriptive case study design, which allows for an in-depth analysis of Nigeria’s AI landscape and its interaction with youth employment trends. Nigeria as a scope is due to its large youth population, high unemployment rate, and growing interest in digital technologies, including Artificial Intelligence. Out of a total of two hundred (200) questionnaires sent out to different individuals, one hundred and five were filled correctly and returned. Our sample size for the study was determined by the number returned.

**RESEARCH PLAN**

The researcher created a questionnaire based on the AI skill acquisition and its associated challenges in the country, using the southwest as a scope. The researcher also makes use of secondary data that shows the relationship between technology and their effect on unemployment.

**DATA COLLECTION**

Data was gathered from responses filled by the respondents to the questionnaire sent out, and secondary data was gathered from sources such as the World Bank and the National Bureau of Statistics**.**

**VALIDITY AND RELIABILITY**

To ensure validity, multiple sources of evidence were triangulated—academic literature, government data, and real-world business cases. Reliability was addressed by clearly documenting the data collection and coding process, making it replicable for future research.

**DATA SOURCES**

National Bureau of Statistics, ALX Nigeria, NUC, ministry of education, Fiverr, Jobber man

1. **PRESENTATION OF ANALYSIS AND DISCUSSION**

TABLE 1 shows the employment status of the respondents

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SEX | UNEMPLOYED | EMPLOYED | STUDENT | SELF-EMPLOYMENT | TOTAL | PROPOTION |
| MALE | 16 | 17 | 14 | 06 | 53 | 0.50% |
| FEMALE | 18 | 18 | 06 | 10 | 52 | 0.50% |
| TOTAL | 34 | 35 | 20 | 16 | 105 | 100 |

The table shows the proportion of the people who participated in the respondents. The male and female gender who participated in the questionnaire is equal.

**TABLE II: AWARENESS OF AI SKILLS ACQUISTION**

|  |  |  |
| --- | --- | --- |
|  | HEARD OF AI | PROPORTION |
| YES | 94 | 0.89% |
| NO | 11 | 0.10% |
| TOTAL | 105 |  |

This table displays that a lot of people knows about the artificial intelligence either through school, work, friends, church, online and social media. 89% of the respondents shows their awareness of AI skills acquisition.

**TABLE III: PERCEPTION OF AI IN EMPLOYMENT**

|  |  |  |
| --- | --- | --- |
|  | DOES AI HELPS JOBS | PROPORTION |
| YES | 85 | 0.81% |
| NO | 20 | 0.19% |

Looking at the percentage of those who agree that AI leads to more jobs shows how some of them have benefited from the advantages of AI. Some have become data analysts, web designers, and so many professional skills leading to the reduction of youth unemployment.

**TABLE IV: AI LEADS TO JOB LOSS**

|  |  |  |
| --- | --- | --- |
|  | AI LEADS TO JOB LOSS | PROPORTION |
| YES | 44 | 0.42% |
| NO | 42 | 0.4% |
| NOT SURE | 19 | 0.18% |

This table reveals the fact that people are skeptical about AI. The fear of AI reducing the labour force and companies preferring the capital approach. This shows the influence of AI on our society.

This study examines the extent to which artificial intelligence, contributes to reducing youth unemployment in Nigeria between 2020 and 2024**."**

|  |  |
| --- | --- |
| YEAR | YOUTH UNEMPLOYMENT TREND |
| 2020 | 10.85% |
| 2021 | 9.05% |
| 2022 | 6.01% |
| 2023 | 5.13% |
| 2024 Q1 | 8.4% |
| 2024 Q2 | 6.5% |

Source: Trading Economics.

Declining Youth Unemployment Rates: From 2020 to 2023, Nigeria experienced a decline in youth unemployment rates, suggesting potential positive effects of various initiatives. The implementation of AI training programs by organizations like ALX, Coursera, and Udemy. For AI in Africa indicates a growing recognition of the need to equip youth with AI skills, which can lead to job creation and reduced unemployment

1. **SUMMARY, CONCLUSION, AND RECOMMENDATION**

There is strong awareness of artificial intelligence in the world; however, most people can’t afford to pay for the fees of this training, leading to a reduction in the usage of these skills. Acquiring such skills can help them become professionals, gain decent jobs, and become employers of labor. As such, they believe AI skills can prevent the prevalent unemployment rate in the region. They have displayed a positive perception of AI skill acquisition, which they believe can help them solve the major issues of gaining professional jobs and becoming employers of laborers. They also believe that there is a lack of AI skill advocacy programs to create awareness, sensitization, and publicity on the benefits and relevant skills and how to acquire them within a short interval. Finally, people believe that participating in AI challenges focused on addressing local social and environmental issues will equip youth with the basic skills needed to solve unemployment issues, hence a solution to youth unemployment. Some of the challenges which are mentioned by the respondents include poor internet and high costs, Unstable power supply, limited infrastructure, weak digital education, rural-urban divide and low digital literacy.

AI-powered platforms offer diverse tools and opportunities for Nigerian youth entrepreneurs to start and grow their businesses across various sectors, including tech, finance, health, e-commerce, and more. By leveraging AI technologies, young Nigerians can streamline operations, enhance decision-making, and access a global market, ultimately boosting their chances of success in the competitive entrepreneurial landscape. These platforms also provide critical support in terms of funding, mentoring, and market expansion, enabling youth entrepreneurship to thrive in the digital economy. Some of the AI-powered platforms in Nigeria are Flutter wave and Andela.

**Recommendations for**

1. **Policymakers:** Develop national initiatives to integrate AI-related subjects into the curriculum from primary to tertiary levels. Partner with global tech companies, universities, and AI research institutions to establish AI boot camps, certification programs, and online learning platforms targeting Nigerian youths. Provide tax incentives, grants, and low-interest loans for AI startups and tech companies that hire young Nigerians or offer internships and apprenticeships.
2. **Educator:** Incorporate AI literacy into the standard curriculum, focusing on foundational knowledge, such as machine learning, natural language processing, and ethical considerations. Forge partnerships with technology companies to provide students with real-world exposure to AI tools, case studies, and internships.
3. **Innovators**: Collaborate with universities and educational institutions to offer scholarships and fellowships in AI-related fields for Nigerian students. This will help build a pipeline of skilled professionals who can contribute to AI innovation. Fund incubation programs that support youth-led AI startups, providing them with mentorship, seed funding, and resources to scale their ideas.

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