

## METHODS

## Unemployment among technical students: implication for managers of higher education

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The problem of unemployment among youths has remained unabated. This has cast doubt on the methods of instruction by lecturers. This study takes a critical review of some of the previous studies with an emphasis on employment statistics and employability skills (ES). The paper identifies the basic elements of ES and the latest statistics on youth unemployment in Africa, particularly Nigeria. The aim is to sensitize education managers of higher institutions in Nigeria about the danger inherent in turning out graduates massively without the corresponding skills to match them adequately with the world of work. Findings show that there is a persistent rise in the rate of youth unemployment because what the schools offer is not compliant with the labor market demand. The resulting skills played a significant role in increasing unemployment among tertiary education graduates. Therefore, the higher education curriculum needs to be modified to reflect the skills required by employers.

**Keywords:** unemployment, employability skills, technical graduate, managers, education

### Introduction

These skills (ES) are the skills needed by youths to make them employable and ensure their sustainability and advancement on the job (1). Ismail and Mohammed (2) observe that some countries in the world have gone a step higher by setting up accreditation bodies for the development of their graduate ES. However, many developing nations, like Nigeria, are still struggling to reposition their technical and vocational programs to meet the stated national objective. This objective of nation-building can only be met when technical education is enhanced (3). Toward this end, Emmanuel (4) observes the need to restructure and enlarge the curriculum of technical education to include ES as a measure aimed at combating joblessness in Nigeria. The main purpose is to produce competent technical graduates who will either be able to teach professionally or seek employment in organizations or set up their own jobs (5). The dream, however, has remained elusive because the curriculum is only geared toward hard skills acquisition.

Consequently, there is growing apprehension on the part of parents and the general public because of the danger it portends for society. The main cause of the worry is that the majority of these youths hold qualifications from higher institutions in Nigeria (6). The Ogun State Bureau of Tertiary Institutions workshop in 2010 found that the nation's employment generation capability has been rising at a pace of between 5 and 7% over the last 7 years. Similarly, the country's approximately 213 universities, polytechnics, and colleges of education produce over 300,000 graduates annually. This number should ordinarily be sufficient for the country's human capital resource needs; however, employers willing to pay well to attract skilled workers are increasingly finding it difficult to fill job vacancies (6). Anyanwu (7) opines that the rising negative impacts of joblessness have prompted a sudden change in government in numerous African nations and an increasing crime rate. For example, the frequent and various military coups in Nigeria have been justified based on the poor standard of living and unemployment among the youths. Thus, the progression of

financial and political changes in different nations in the sub-Saharan region (SSA) of Africa and some other places in the world has been witnessed (8). For instance, in Nigeria today, the emergence of ethnic militias, largely led by youths, such as Egbesu, Oodua Peoples' Congress (OPC), Niger Delta Boys, and the Independent People of Biafra (IPOB), which are used to terrorize and deprive ordinary citizens of a just and decent living, are the direct consequences of youth unemployment on society. The position is not only sympathetic but also humiliating in that the immense human material resources available to the country have not been trained and exploited to the country's benefit (9). The problem has largely been attributed to the absence of relevant infrastructure and an outdated school curriculum to match the students with the needs of the employers (6, 10). Employment skills are job skills that young people need to secure, maintain, and develop their jobs. Ismail and World Economic Forum (11) note that while some developed countries have taken a step further in technical and vocational education by establishing accredited institutes to develop their graduate employment skills, many developing countries, such as Nigeria, still have professional programs to meet their technical and nation-building national goals. In this regard, the technical education curriculum needs to be restructured and expanded to include employment skills to avoid unemployment. ES are the employment skills needed by youths not only to help them secure jobs but to ensure their advancement and sustainability on the job (1). The absence of these skills in the curriculum of colleges of education and technical education programs has disconnected the students from the requirements of the labor market.

## Literature

### Main factor responsible for massive youth unemployment in Nigeria

The lack of ES, which have been attributed to changes in the use and application of technologies, has given rise to the challenges of unemployment among graduates (12). Solesvik et al. (13) observe that the expectations of the industry of graduates are now shifting from exhibiting academic expertise in a chosen discipline to being more commercially informed candidates. These are candidates who have a strong command and immediate ability to apply a broad range of skills considered essential in the workplace.

Wilton (14) opines that employers expect graduates to possess the technical and discipline competencies from their degrees. This will enable the graduates to display broader skills like team-working, communication, leadership, critical thinking, problem-solving, and administrative potential. It is very strongly believed that it is the existence of a skill gap between the schools and the industry that is responsible for the massive job losses and unemployment in Nigeria

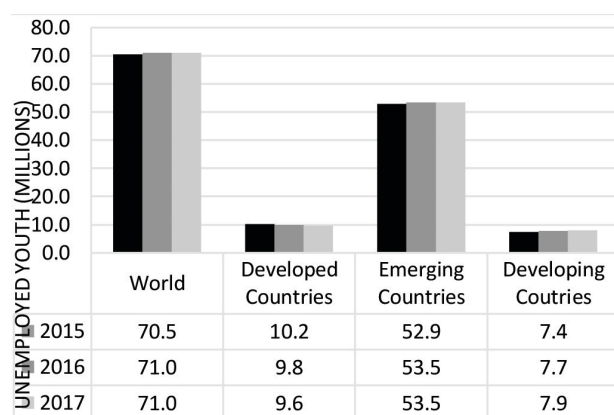
today. Research has suggested that the jobs are there but the graduates lack the skills to match those jobs (15–17).

Therefore, knowledge and the workforce must have a relationship with the demand of the labor market. The over-dependence on academic qualifications has failed to guarantee quality jobs (18, 19). A skills gap existed between the school and the industry, which needed to be bridged. According to Hasanefendic et al. (20), the school should be responsible for the training of individuals to enter the labor market. This is achievable through constant change in the curriculum to adjust to the environmental needs (21). Amusan et al. (21) observe that the change should include the existing field of study and not just a new program. The sudden turnaround to entrepreneurial education by the Nigeria higher education managers is an acceptance of the failure of the school curriculum as it is currently operated (22–25). Technological developments are leading to better Internet-based approach for resolutions. This stage is commonly referred to as Industry 4.0, and it is thought to contain the possibility for new flexible, self-managing goods (26, 27).

The large number of graduates being turned out year-in, year-out from the nation's colleges of education without any corresponding skills to match them with the world of work has made some sections of the public label them as "half-baked" graduates. This has equally caused Adebayo (28) to advise Nigerian youths to embrace soft skills. These are the skills other than the hard skills needed for 21st-century jobs. Consequently, the importance of technical education in the economic growth of individuals and society cannot be overemphasized. Amedorme and Fiagbe (29) opined that the attainment of employers' needs is better learned in school and is key to the employability of graduates. The inculcation of ES in the learners would help in producing technical graduates that would match the needs of employers. As a result, the rate of social menace in the society is decreasing.

### Trend and characteristics of youth unemployment in Africa

The alarming rate of unemployment among students of technical education who graduated from higher institutions particularly sparked the choice of going deeper in this study. The concept arose as a result of the growing number of recently graduated students who roam the streets and, upon random encounters with this researcher, complain about their inability to find work. Though, the challenge is global, it is more severe in African countries and Nigeria in particular. The percentage of youth unemployment has been on the increase progressively since 2015. In 2015, statistics show that about 73.4 million youth globally were unemployed. The 73.4 million figure indicates that global youth unemployment has increased by about 4 million since the last global economic meltdown in 2007 (30). Africa



**FIGURE 1** | Global youth unemployment and working trend.

accounts for 20% of the increase. The worldwide youth unemployment rate was 12.7% in 2011. This was a full rate higher than the pre-emergency level (7). In 2011, youth unemployment in SSA, where Nigeria belongs, was slightly higher than the global average at 12.8%, but with the North African average equaling 27.1%, the highest amongst the regions of the world. In 2011, Africa's youth unemployment rate was estimated to be around 20%. Furthermore, African youths are approximately thrice the size of unemployed adults (31). Youth unemployment is also very high among women in Africa, especially in North Africa (7, 31). In 2010, the percentage of unemployed young women in North Africa was 34.3%. This is high when compared to the global average of 13.1% for that year. The rate for young men was 18.5%, compared to the global average of 12.6%; both are the highest for any region. This was the global trend of unemployment in the world, including Africa, between 2010 and 2017. In 2010, the rate of youth unemployment was 13%, with a slight decrease of 12.9% in 2011. Thereafter, there has been a persistent rise in the rate of youth unemployment up to the present global average of 13.9% globally. Therefore, the need for a practical approach toward reducing the rise in youth unemployment becomes very important.

### **Classification of 21st-century skills**

The learning of ES for a better result is achievable in higher institutions on a discipline basis (32). A broad classification of arrays of ES is provided in **Figure 1**. These are the essential 21st-century skills that are required in the workplace by employers. The components of each broad area are what are deemed necessary for inclusion into the curriculum of the affected area of study discipline in higher institutions. Skills and Employee (33) classify ES into personality skills, people skills, applied knowledge skills, and workplace skills.

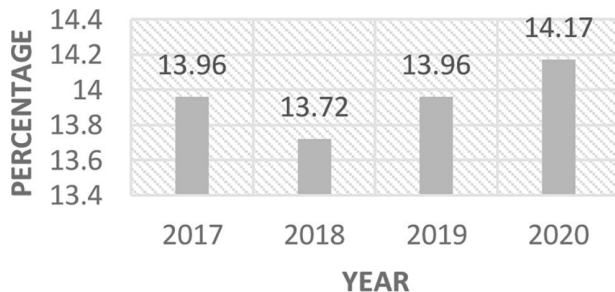
Youth unemployment is currently one of the greatest challenges facing countries globally, including African countries and Nigeria in particular. The current wave of social ills and instability in many parts of the world is a direct consequence of hopelessness occasioned by joblessness

among the youths. In 2015, statistics show that about 73.4 million youth globally were unemployed. The 73.4 million figure shows an increase of more than 4 million since the start of the global economic meltdown in 2007. About 20% of the unemployment occurs in Africa. The global youth unemployment rate has been estimated to be 12.7%. This is more than the precrisis level in 2011 (7). In 2011, youth unemployment in SSA, where Nigeria belongs was slightly higher than the global average at 12.8%. The North African average was 27.1%, the highest amongst the regions of the world. Africa's youth unemployment rate was approximately 20%. Furthermore, youths in Africa make up about thrice the number of unemployed adults (34). In Africa, especially in North Africa, youth unemployment is also very high among women. The unemployment rate for young women in North Africa was 34.3% in 2010, compared to the global average of 13.1%. The rate for young men stood at 18.5%, compared to the global average of 12.6%. These are the highest figures in any region of the world. Currently, youth unemployment has risen above 13.0% globally. The global total of youth unemployment reached 71 million in 2016, an increase of 0.5 million in comparison to 2015 values. This value is not expected to change in 2017. The increase in the 2016 global figures appears to be due to growing youth unemployment in emerging countries where there is a pre-dominance of evolving technologies. This arose as a result of the industries' divesting from production economies to service-based economies. The emergence of advanced robotic automation in some sections of the developed world is equally giving birth to technological unemployment; the 4th Industrial Revolution is known in some quarters as I4.0

**TABLE 1** | Youth unemployment trends in 2015–2017.

Region	Unemployed Youth 2015 - 2017 (millions)		
	2015	2016	2017
<b>World</b>	70.5	71.0	71.0
<b>Africa</b>			
Northern Africa	3.7	3.7	3.7
Sub-Saharan Africa	<b>11.1</b>	11.3	11.6
<b>Americas</b>			
Latin America and the Caribbean	8.5	9.2	9.3
Northern America	3.0	2.9	2.9
<b>Arab States</b>	2.6	2.7	2.6
<b>Asia</b>			
Eastern Asia	11.9	11.4	11.0
South-Eastern Asia and the Pacific	7.4	7.7	3.0
Southern Asia	13.7	13.5	13.9
<b>Europe and Central Asia</b>			
Central and Western Asia	2.1	2.1	2.2
Eastern Europe	2.0	1.3	1.7
Northern, Southern, and Western Europe	4.5	4.3	4.1

## PERCENT YOUTH UNEMPLOYMENT IN NIGERIA



**FIGURE 2** | Youth unemployment rate in Nigeria.

(35–37). This has made skilled workers obsolete due to their sole adherence to hard skills without those skills needed to adapt and blend with the new changes occurring in the world of work (38). **Figure 1** describes the trend globally based on developmental classifications.

As shown in **Table 1**, statistics in 2017 show that about 71.0 million youth globally are unemployed. The 71.0 million figure represents a half-million increase since 2015, with Africa accounting for 21.5% of them. Youth unemployment in SSA alone, where Nigeria belongs, is 16.3%, but with the North African average equaling 21.5%, the second highest after the Asia region. The figure is extremely high for a region and country that is yearning for human and capital development.

### Youth unemployment in Nigeria

According to Anyanwu (7), youth unemployment is a time bomb ready to explode if the dangerous trend is not urgently reversed. Specifically, Figure 3 attests to the steady and astronomical rise in the rate of youth unemployment in Nigeria between 2017 and 2020. This trend can only be reversed through effective collaboration between schools and labor employers, as well as a framework for matching students with industry needs (39, 40).

**Figure 2** shows that youth unemployment has risen from 13.96% in 2017 to 14.97% in the year 2020. This is very astronomical for a developing nation like Nigeria.

### **Instruction techniques for employability skills**

The latest knowledge about industrial practices is essential for academic staff to be able to teach ES effectively in tertiary institutions. The lecturers should be aware of how different workplaces function and are structured. The acquisition of instructional skills, expertise, and

knowledge by lecturers is intended to help them move beyond traditional teaching methods and techniques (41). Technical education has practical components in both teaching and assessment. Still, the use of varying teaching methodologies and techniques would greatly assist in developing the graduate attributes expected of college of education students.

Skills development is embedded in teaching and learning (42, 43). A large number of students and the decaying infrastructure are making it difficult to develop these skills. Instructional development experts, faculty, administrators, and students should ensure that learning is competency-based (1). This will enhance students' understanding of experimental methodologies. Higher institutions should strive harder to involve the development of the three upper levels of analysis, synthesis, and evaluation in the cognitive domain of Bloom's taxonomy. It is of interest to note that Bloom's taxonomy consists of knowledge, comprehension, application, analysis, synthesis, and evaluation. This does not mean that grounding in knowledge, comprehension, and application is not equally important. They are required to strengthen the higher levels of the domain.

To enhance a pragmatic and strong combination between the development of ES by the learners, lecturers, and the teaching methods, learning must be problem-based (44). The approach must be holistic and involve lifelong learning skills and be purposeful too (45–47). Teaching/learning must encompass all the facets of pedagogy and not just facts. The objective must be focused on the learners; i.e., learner-centered. Finally, the teacher must act as a facilitator, mentor, evaluator, and coach, as well as demonstrate generic skills to students (48).

ES are attributes that enable one to secure a job and advance progressively on the job. Mitch et al. (48) advanced strategies for successfully teaching eight major ES. Those suggestions are presented in **Table 2**.

## Findings

The data presented earlier indicates that youth unemployment is acute in Africa and Southeast Asia. The rate of youth unemployment has also been growing persistently since the year 2017 in Nigeria, from 13.96% to 14.17%. Equally, the rate of youth unemployment is higher in the emerging countries of the world than in the developed and developing nations. Out of the global youth unemployment rate of 70.0 million in 2017, the emerging nations have 53.5 million and developed and developing countries have 9.6 and 7.9 million, respectively.

The growing rate of unemployment implies that more and more school-age boys and girls are no longer seeing any justification for attending school, especially at the higher levels. This has accounted for the increasing rate



of social vices in society today. The wave of armed robbery, kidnapping for ransom, and even ritual killings by Yahoo boys can only be stemmed when we have a functional education curriculum that responds and matches the students with the needs of the employers.

## Discussion

Many institutions of higher learning, especially in the developed world and most of the developing ones, are now introducing ES into their curriculum (2, 49). This is in a bid to ensure that their instructional procedures are compatible with the needs of employers for 21st-century jobs. It is to be noted that the issue of ES is a lifelong process and that no one is ever perfectly employed (45, 50–52). Equally, the issue of unemployment does not exempt any nation, whether developed or developing. Unemployment in different countries is occasioned by different phenomena; change in technology or skill mismatch (7, 53–55). Research has shown that most developed countries in the world have developed accreditation bodies for their graduate employability. This, of course, accounts for the low level of youth unemployment in those countries. In the same

vein, the rise in the level of technological change and automated innovations in emerging countries like Nigeria accounts for the high rate of youth unemployment. The skills acquired during training easily become obsolete at graduation because of rapidly changing and expanding technology (37). Radda (56) notes that only 1 out of every 100 Nigerian graduates is employable. This shows that the issue of unemployment in Nigeria has reached a crisis level (4). The main solutions to arresting the trend, therefore, are the remodeling of the technical education curriculum and the reskilling of students in tertiary institutions. This will help to match them with the needs of the employers. According to studies, not all teachers are up to date on technological advancements and/or the best methods for teaching students (57). This necessitated the need for a review of the technical education curriculum. Otherwise, the rate of social ills associated with joblessness will continue to grow in society. The remodeling is not just about changing the curriculum. It is about fixing the missing link. The major missing link established by literature is the non-existence of the skills for 21st-century jobs in the curriculum (52, 58–61). Introducing ES into the higher education curriculum is not enough. It needed to be done to ensure that it recognizes the discipline-difference and the right techniques of instruction adopted (62). A successful career is ensured when one is employable (40, 63).

**TABLE 2 |** Techniques for teaching employability skills.

Employability skills	Teaching techniques
Communication	Demonstrations, working in groups, role-playing, writing and presenting written reports
Problem-solving	Decision-making activities, development and designing of models, case studies, investigative projects and research, simulations, using various problem-solving tools and techniques, problem-solving in teams and networks
Technology	Using the internet and intranets, information communication technology skills to complete activities Using industry-related software, technology, machines, and equipment
Learning	Mentoring and coaching activities, reflective journals, logbooks, and diaries, self-evaluation tools
Self-management	Work plans, career planning exercises, development of portfolios using logbooks to record time management skills and monitor own performance, and work plans
Planning and organizing	Research and data collection, developing action plans, time management activities, planning and organizing events, Goal-setting activities and scheduling tasks, collecting and analyzing information
Initiative and enterprise	Brainstorming activities, designing innovative and creative practices and solutions, initiating and designing change process, simulation activities
Teamwork	Group projects, group discussion, learning sets, communities of practice, and syndicates

## Conclusion

To avoid the continuous production of unemployable graduates, the management of our institutions of higher learning, especially heads of higher institutions should invigorate their curriculum with the skills that are relevant to today's labor market. These are 21st-century skills that can assist students in navigating the negative effects of I4.0. In the same vein, graduate tracking is a database that links graduates with schools so that the school can not only be able to monitor their graduates but know where they are, what they are doing, and how they are faring. It is a very good feedback process that enables the school to have records of their graduates who are both employed and unemployed. This will allow managers of education to keep accurate data on their employed and unemployed graduates by discipline and year. This will eliminate the problem of reliance on guesses and unrealistic forecasts.

## Source of data

Because the study is qualitative, the data used were obtained through document analysis.

## Conflicts of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Author contributions

All the authors contributed to the metal analysis toward finding the gap for the study. Similarly, OS played a significant role in the review process and the document analysis. IA and OE were very active in the discussion and conclusion of the study.

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