

Information and Communication Technology (ICT) Skill Gaps and Graduate Unemployment in Ibadan, Oyo State, Nigeria

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The increasing unemployment rate among graduates of tertiary institutions has attracted a lot of research interests, which were focused on understanding the causes and impact on national development. This study was conducted to identify ICT skills gap and its contribution to the high rate of unemployment. The study location was Ibadan metropolis. The study adopted a triangulation research design involving a survey (structured questionnaire) and key informant interview. The study was carried out using a sample of 283 graduates selected across 5 local governments in Ibadan metropolitan area. Quantitative data were analyzed using frequency distributions, percentages, and chi-square while qualitative data were content analyzed. The study found that the majority of the respondents (graduates) assessed themselves as 'proficient' in the use of social media, email, and other web-based facilities (96.5%) and Microsoft Word (96.8%). Beyond these common usages, ICT skills declined drastically as follows: computer programming/coding (49.1%), graphic design (56.9%), and application design (42.7%). The prevalent ICT skills level among graduates does not match recruiters' requirements to land a lucrative job. The study also found a significant relationship between possessing advanced ICT skills and well-paid jobs through a Chi-square test. The study recommended that education and industry stakeholders, government agencies, and the media should increase awareness of the acquisition of ICT skills by graduates while tertiary institutions should review their curricula to embrace critical ICT skills for undergraduates. This is important to reposition Nigerian graduates for employability in the fourth industrial revolution labour market that is digital skill oriented.

Keywords: Information and Communication Technology (ICT) skills, skills gap, graduate unemployment

Introduction

Nigeria has been one of the countries where unemployment has been on a consistent rise since the beginning of the 21st century. According to the National Bureau of Statistics (2020), the average value for Nigeria's unemployment from the last quarter of 2014 was 12.57% with a minimum of 9.59 percent in 2008 and a maximum of 27.01 percent in the last quarter of 2020. With the report from the National Bureau of Statistics in Q4 2020, Nigeria's unemployment hit 33.3 percent becoming the third on the global unemployment index after South Africa and Namibia.

National Bureau of Statistics (2010) reported that 52 million individuals in Nigeria's economically active population are jobless, mainly

recent university graduates. Ochonma (2011) in his research reported that about 2.8 million fresh graduates enter the labour market yearly but only 10% of this number are gainfully employed. This view was corroborated by the Federal Ministry of Labour and Productivity Report (2008), which established that Nigeria has one of the highest levels of youth unemployment in the world, ranging between 60-65%.

Over the years, a lot of studies have been conducted to understand the causes of the prevalent graduate unemployment problem in Nigeria and prescribe a panacea to solve the problem. Many of these studies have identified various factors as being responsible for the high rate of unemployment in the country. In Fajana (2000) and

Eneji *et al.* (2013), graduate unemployment was seen as a child of the introduction of the Structural Adjustment Program (SAP) by President Ibrahim Babangida in 1986, though they included that the dynamics of graduate unemployment have changed over time, it was first conceived following the SAP policy. Oluseyi and Elegbede (2012) identified economic recession, government policy, manpower planning, and the use of capital-intensive technology as the factors responsible for the high rate of graduate unemployment in Nigeria. CIPMN (2016) listed reasons for graduate unemployment as inadequate national employment policy, low-quality graduates, irrelevant educational system, wrong curricula, poor political governance, inconsistency in government policies, and an unfriendly business environment.

It is a fact that these factors are old causes of graduate unemployment as the dynamics are changing on a daily basis. The fast-changing technological landscape did not exonerate the workplace, hence, forcing a lot of changes in the requirements for work and in the ways job duties are carried out. Technology is being introduced into different parts of business operations daily and reducing the need for unskilled employees.

Ndifon (2009) criticized Nigeria's educational curriculum as outdated and lacking the necessary training facilities to adequately develop graduate skills to be competitive for employment in the current time. This stance is corroborated by Odufowokan (2010) who posited that ICT skills are important to individual job seekers in finding solutions to the problem of joblessness, in terms of graduate and non-graduate unemployment.

These literature insights inform the need to understand and measure the dynamics of the digital industry, ICT skills, and its mismatch as factors in graduate unemployment. According to a business survey carried out by Capgemini in 2017, 55 percent of organizations worldwide acknowledge that the digital skills gap is widening. Jobberman Digital Sector Skills Gap Report (2020) estimated Nigeria's Digital Sector's potential to add \$88 billion and 3 million jobs to the economy by 2027, its current reputation as Africa's biggest digital market and the foremost destination for investment.

The growth of the ICT sector and technology-driven businesses within the financial service and healthcare delivery sectors are creating serious

competition for conventional businesses within the sectors, reducing their profitability, and forcing organizations to reduce their hiring potentials. While it took a positive poise that the growth of the ICT sector and digital industry has made Nigeria the digital and technology giant of Africa, housing some of the most profitable digital enterprises like Jumia, Paystack, 54gene, Flutterwave, Helium Health, CowryWise, etc. who are also great employers of labour. The flip turn to this is the fact that these organizations raised graduate employment standards, requiring only graduates with sophisticated ICT skills to fit into their organization's culture. These organizations not only raise the employment standard within the digital sectors but, they equally forced conventional businesses to be technology-driven and also deploy massive technology for their business, hence adjusting to some technological realities. This became a problem because of the inability of the educational system to inculcate the new standard into their system, thereby giving rise to the creation of ICT and employability training enterprises.

This study aimed to explore the existing level of ICT skills among graduates and how well they align with the demands of suitable graduate positions in different industries. To achieve this, the researcher conducted surveys with both employed and unemployed graduates, and also gathered insights from key informants who offered comprehensive information on the dynamics of graduate employment and ICT skills relevance within the study area.

Objectives

The overall objective of the study was to understand the current ICT skills level among graduates and the standard requirements for getting a graduate job. The specific objectives are as follows:

- Evaluate the current level of ICT skills among graduates in Ibadan metropolis
- Understand ICT skills required for graduate jobs
- Establish a link between ICT skills and gainful employment

Literature review

ICT skills has been variously defined in the literature, notable among the definition include that

of Anyim (2018) who referred to ICT literacy skill as the ability to use digital technology and communication tools ethically and legally to define, access, manage, integrate, evaluate, create, and communicate information in a knowledge society. In the word of Ogbuiyi (2015), ICT skills as the ability to retrieve data productively and communicate adequately using computer hardware and software. UNESCO defined ICT skills as a range of abilities to use digital devices, communication apps, and networks to access and manage information for effective and creative self-fulfillment in life, learning, work, and social activities.

There have been a series of arguments in the literature about the categorization of ICT skills, while some studies have adopted 3 categories model, some adopted 2, and some are using 4 or even more categories. Maneschijn *et al.* (2013) however, concluded that these ranges and levels can differ between developed and developing countries.

Lotriet, Matthee and Alexander (2010) state that ICT skills range from basic skills required by individuals to more advanced skills required by ICT professionals, as well as those skills that are needed by managers in organizations where the managers are allowed to use ICT efficiently and innovatively.

Some authors differ in the categorization of ICT skills as basic, intermediate, and advanced skills. Blanco and Lopez Boo (2010) distinguished three categories of ICT skills according to who the users of the skills are, a categorization that has been found suitable for this study. These categories are: *Basic ICT Skills*: This implies the ability of a person to make basic use of a computer for data processing, exchange of information, and for increased efficiency. These include the ability to use data processing software such as Microsoft Word, ability to use features such as email, social media, video conferencing applications, using search engines, calendar tools, and surf the internet.

Advanced ICT Skills: This implies the ability of a person to use the computer to complete complex tasks such as install software, identify and troubleshoot basic problems, and use specialized software such as Microsoft Excel, Coreldraw, Adobe tools, Canva, and collaborative tools such as Google Suite, Slack, and so on.

ICT Specialist Skills: This is the ability of a person to develop, operate and maintain ICT systems. This includes professional mastery in specialized ICT fields such as data analysis, business intelligence, computer programming, statistical analysis, engineering design, digital marketing, computer graphic design, artificial intelligence, cloud computing, video editing, cyber-security, architectural design, project management, automation, social media management, analytics, product design, web and mobile app development, user experience design, and machine learning.

Advancements in technology have automated routine tasks, resulting in a decline in demand for workers without basic or low ICT skills (Autor, 2003). With digital technologies driving productivity, countries with highly-skilled workers will thrive (McKinsey, 2017). However, this shift could lead to unemployment due to skills mismatch and the creation of new jobs relying heavily on technological competencies (Goos *et al.*, 2011). Workers need to have access to training in the skills needed for emerging jobs (Folea, 2018), which are likely to require problem-solving, task management, creativity, and "human" factors (Berger and Frey, 2016).

The COVID-19 pandemic and increasing work flexibility could hasten this process, and active labour market policies must prioritize digital upskilling and reskilling to avoid long-term unemployment and poverty (OECD, 2016). The public sector is also increasingly using digital channels, emphasizing the need for ongoing learning opportunities (McKinsey, 2017).

The role of ICT in employment generation cannot be over-emphasized. This position has been backed by numerous scholars and academics who offered valid, logical explanations to analyze how ICT helps to alleviate the spate of unemployment. Smolny (1998) and Vivarelli & Pianta (2000) thought that ICT is not static, it is dynamic and also changes rapidly. Its persistent and continued growth helps to improve and provide efficiency, access to new markets, create new employment opportunities, and further birth new activities which not only have prospects but are also useful in getting tasks done quickly and more efficiently. Tinio (2015) said that the core of ICT entails the creation, storage, management, and dissemination of information. In the same vein, while expounding on what makes it so prospective and beneficial in

solving unemployment challenges among the youth, Adebayo and Akinola, 2008 opined that ICT has made the whole world a unified place, free for all without barriers or limitations. ICT has successfully broken down the barriers of distance, language, culture, race, etc that hitherto used to serve as impediments in human and economic interrelations. Expounding on the useful benefits of ICT, Adekomi (2004) opined that it is the integration or utilization of computer technologies for the sole purpose of disseminating information to a target market or consumer without the limitation of time or space.

In order to function, ICT needs a combination of digital devices in the form of hardware and software for the purpose of transferring information.

Rapid development in the ICT industry has opened up further and greater opportunities which include the provision of employment opportunities. Exploratory forays into the ICT industry have opened up a lot of career paths that are very much in demand and have also proven to be one of the greatest panaceas to the ravaging spate of unemployment facing Nigeria. The nature of the job opportunities that the ICT sector provides is not only flexible but also comes with premium empowerment for those who, hitherto know next to nothing on the subject. Within the larger ICT industry, there are a lot of firms and startups dedicated to educating people on technological skills acquisition and education. (Samuelson, 2008).

In a recent report by Nigeria Information Technology Development Agency (NITDA), qualitative research into the impacts of the ICT sector showed that the sector has created over twelve million jobs within the last two years. In the same vein, Fakiyesi (2010) also discovered that the growth of Nigeria's GDP can be attributed largely to the ICT sector. This position was also underscored by Oluleye (2006) who also hailed the immense contribution of the ICT sector towards national development.

The job opportunities provided by the ICT sector are immense and diverse. A quick perusal includes online freelancing which involves the use of online job platforms where buyers and sellers are connected online. The platform serves as an intermediary between the parties and an umpire in

case of disputes as well. Another job opportunity provided by ICT is Influencer Marketing: This is a means of marketing that involves the use of partnerships and collaborations with people who have a large following online. Also, there are several others like content creation, online consultancy, affiliate marketing, e-commerce, etc.

Methodology

The study was carried out within Ibadan metropolis because of its urban status with concentrated population of both employed and unemployed graduates, and the increasing number of high-growth and start-up businesses that employ graduates. The study population encompassed employed and unemployed graduates across the five metropolitan local governments in Ibadan including Ibadan North, Ibadan North East, Ibadan North West, Ibadan South West, and Ibadan South East, which were all formed from the erstwhile Ibadan Municipal Government.

The study was a descriptive research design which included quantitative and qualitative methods, specifically, adopting a questionnaire and key informant interview as the instrument of data collection. A sample size of 284 was drawn based on a multistage sampling procedure, where purposive sampling technique was used based on these criteria for inclusion (Criteria for inclusion include (i) being a tertiary institution graduate (ii) being below 40 years of age (iii) having an employment status i.e. employed, unemployed, or self-employed). The purposive sampling technique was used predominantly within the sampling stages because it ensured that questionnaires were administered to those that met the criteria for inclusion only and who provided information that was very relevant to the study.

The data for the study was collected primarily through the use of a questionnaire which included close-ended and open-ended questions structured in line with the objectives of the study. Key Informant Interview was also used to collect data from people (*n:10*) who have relevant information about ICT skills and their impact on graduate unemployment reduction. The interview was structured to probe key informants on ICT skills level among graduate job applicants, ICT skills requirements for graduate positions, and perspectives and solutions to graduate unemployment. A mobile phone

application was used during the key informant interview to record the conversations with the key informants and transcribe the recording into text for reports. Efforts were made to take note of the frequency table and simple percentile were used to present the socio-demographic distribution of the respondents. Bar chart and tables were also used to present the data for the objective. Chi-

gestures and countenances of the key informant during the discussions. The quantitative data were analyzed with SPSS. For the descriptive analysis, a square was used to test relationship between the variables. The data from the quantitative method was reported verbatim to buttress or oppose quantitative result.

Result and discussions

Table 1: Socio-demographic characteristics of respondents

| Socio-Demographic Variable | Characteristics | Frequency | Percentage |
|----------------------------|--|-----------|------------|
| Gender | Male | 138 | 49% |
| | Female | 145 | 51% |
| Age Range | 20 - 24 years | 54 | 19% |
| | 25 - 30 years | 182 | 64% |
| | 30 years and above | 47 | 17% |
| Employment Status | Unemployed | 62 | 22% |
| | Employed | 133 | 47% |
| | Self Employed /Freelance | 87 | 31% |
| Highest Qualification | OND/NCE | 13 | 5% |
| | Graduate Degree (B.Sc/HND/B.Ed/B.A, LLB, etc) | 244 | 86% |
| | Post-graduate qualifications (MSC/PGD/M. ED, etc) | 24 | 9% |

Table 1: Respondents’ Socio-Demographic Details
Source: Researchers’ Survey, 2023

Table 1 above shows the socio-demographic components of the respondents. The first variable captures the gender of the respondents where 138 (49%) males and 145 (51%) females are sampled for the study. In terms of the age range of respondents, 54 (19%) of the respondents falls between the age of 20 and 24 years, 182 (64%) of the respondents falls between the age of 25 and 30 years, and 47 (17%) of the respondents are 30 years or older. As indicated in the table, 62 (22%) of the participants are unemployed, 133 (47%) of the respondents are employed, and 87 (31%) are self-employed or freelancing. In the distribution of respondents based on the highest qualifications obtained, 13 (5%) of respondents have OND/NCE,

29 (10%) of respondents have HND, 215 (77%) of respondents have B.Sc., and 24 (9%) has M.Sc. and other postgraduate qualifications.

Table 2: Assessment of current ICT skills level among graduates

| SKILLS LEVEL | SKILLS | LEVEL OF PROFICIENCIES | |
|------------------------|---|---|-------------------------------------|
| | | Proficient: Excellent, V. Good, and Good. | Not-Proficient: Fair and not at all |
| BASIC ICT SKILLS | Microsoft Office Word usage | 274 (96.8%) | 9 (3.2%) |
| | Email, social media, and web-based facilities | 273 (96.5%) | 10 (3.5%) |
| | Exchange files between 1 or more computers | 217 (76.7%) | 66 (23.3%) |
| | Average Percentage | 90.1% | 9.9% |
| SPECIALISED ICT SKILLS | Computer programming/coding | 139 (49.1%) | 144 (50.9%) |
| | Graphic design programmes | 161 (56.9%) | 122 (43.1%) |
| | Website and mobile application design | 121 (42.7%) | 162 (57.3%) |
| | Other specialist ICT skills | 103 (36.4%) | 180 (63.6%) |
| | Average Percentage | 46.3% | 53.7% |

Table 2 Assessment of Current ICT Skills Level
Sources: Researchers' survey 2023

Table 2 shows the current level of ICT skills proficiencies among the respondents. At the basic ICT skills level, 274 (96.8%) respondents are proficient in Microsoft Office Word, 273 (96.5%) respondents are proficient in email and other web-based facilities, and 217 (76.7%) are proficient in exchanging files between computers. On average, 90% of respondents possess basic proficiency in ICT skills. At the specialist ICT skills level, 139 (49.1%) respondents claimed to be proficient in coding, 161 (56.9%) respondents claimed they could make computer-aided designs, 121 (42.7%) respondents indicated that they are good in web and mobile applications design, and 103 (36.4%) respondents indicated that they are proficient in other specialist applications. Averagely, 46% of respondents claimed proficiency in specialist ICT skills.

The key informant interview yielded a similar result. Following are some of the quotations from the survey.

“50% of applicants have only basic knowledge of MS Office, just Microsoft Word, and some of them cannot even manipulate Word very well, talk less of Powerpoint and Excel that we use more.”

(Human Resources Manager, Female, 41 years, 12 years experience) Sources: **Researcher's KII, 2023**

“We found it easy to fill positions such as Front Desk Officer, Receptionist, and Admin roles which require little or no ICT skills, however when it comes to advanced skills like programming, and software development, we usually have that position unfilled for a long time. Most of the graduates are good with social media use, sending emails, and doing basic typing, not up to 10% have those advanced skills and that's why we always find it difficult to fill the positions.” (Managing Director, Male, 54 years old, 18 years experience) Sources: **Researcher's KII, 2023**

The predominance of these skills could be explained through the submission of Allmann and Blank (2020), who called them compulsory computing skills as they are skills that people are forced to learn and get acquainted with due to how the internet infiltrates their daily needs. Bejinaru (2019) opined this is skills are acquired due to a digitized society and are basic skills in modern-day

education and the economy. Similarly, Israel and Edesiri (2013) opined that basic ICT skill is an essential requirement for one to operate in the knowledge society of the 21st Century. This implies graduates in the study are prospective of acquiring other ICT skills since Allmann and Blank (2020) stipulated ICT skills are simultaneous in nature. This implies having a grasp of any IT skill will ease learning another skill that requires cognitive prowess. Other skills that were of average acquaintance among the respondents are working with Excel, PowerPoint, and Canva and installing and updating software. Skills that were found least

amongst the respondents are advanced computing skills such as programming, analysis, web design, and graphic design tools. This finding is the same as the finding of Pitan and Adedeji (2012) who reported that many employers confirm that graduates possess a broad and respectable understanding of the knowledge base on disciplines, they expressed disappointment with the preparation of graduates in those applied and ICT skills necessary for solving problems and enhancing business productivity.

Assessment of ICT skills requirements for graduate jobs

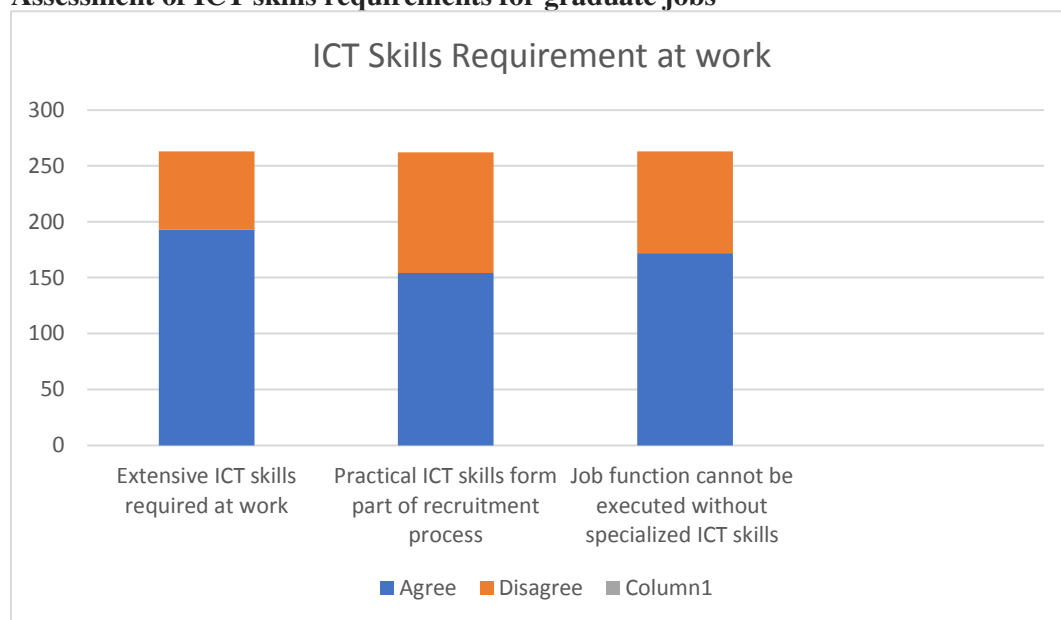


Figure 1: Assessment of ICT skills requirements for graduate jobs
Source: Researchers’ Survey 2023

Figure 1 shows respondents’ answers about the ICT skills required for graduate jobs. Only 263 (93%) of the respondents filled this part of the questionnaire because it’s directed to those who are either employed, self-employed, or partially employed, Hence, the data report from this section is based on the 263 respondents. 193 (73.38%) agreed that they use ICT skills extensively at work, while 70 (26.62%) disagree. The survey went further to ask whether the practical demonstration of ICT skills was part of the recruitment process for their jobs, 154 (58.78%) respondents agreed, but 108 (41.22%) respondents disagreed about ICT skills being part of the recruitment process for their current position. Respondents were also asked if

their job functions cannot be executed without specialized ICT skills and only 172 (65.40%) respondents agreed, the remaining 91 (34.60%) respondents disagreed. The result from the survey showed that ICT skills are key to the recruitment process with the majority also consenting to the fact that they cannot complete their daily tasks without using a computer system to perform some functions. This, however, does not imply the depth at which they need to go in ICT to be able to perform these tasks. Results from the key informant interview have helped to better understand this phenomenon.

The majority of the key informants agreed that the majority of the graduate jobs required at least

basic ICT skills but how unable to guarantee how lucrative these jobs are. It also established the changing requirements for jobs as a way of reducing the number of applications for the job. Some of the KII reports are quoted below:

“Ordinarily, graduates with basic ICT skills could do the jobs, but because of the high number of applicants, we have to make the requirements strict by requiring higher skills and additional qualifications, this will reduce the number of applications we’d get. (Principal Consultant in a recruiting firm, Male, 38, 9 years experience) **Sources: Researcher’s KII, 2023**

“50% of the available entry-level positions require basic IT skills, most of these jobs

are everyday jobs that anyone can do, they don’t pay a lot of money too because the person doing it is not experienced enough and does not offer any special skill.” (Human Resources Manager, Female, 41 years, 12 years experience) **Sources: Researcher’s KII, 2023**

It could be deduced from the above that the ICT skills requirements for graduate roles are subjective to a lot of factors. It is also established that remunerations have a lot to do with the skills requirements for the various roles.

Table 3: Linkages between ICT skills and gainful employment

| Chi-square | Value | Df | P-value |
|--|--------|----|---------|
| Gainfully employed and well-paid * Use of specialized ICT skills | 29.663 | 16 | 0.02 |

Table 3: Cross-relationship between specialized ICT skills and gainful employment

Source: Researchers’ survey 2023. IBM SPSS 2022

A chi-square analysis was conducted to test the cross-relationship between specialized ICT skills and gainful employment. The test was statistically significant for gainful employment and specialized ICT skills at 0.02 p-value. According to the cross-relationship test, a significant relationship was discovered between acquiring advanced skills like programming and getting a well-paid job. This implies those with specialist ICT skills get more paid than those without specialist ICT skills. This aligned with the revelation of one of the key informants.

Some results from the KII aligned with this finding:

“ICT skills are now varying and come with a lot of remote opportunities, if one is able to learn and practice ICT, they have the opportunity to earn more, it is competitive nowadays.” (Human Resources Business Manager, Male, 36 years old, 8 years experience) **Source: Researchers’ KII 2023**

“When graduates possess top-notch ICT skills, they could get remote jobs with some international companies, and these companies pay in Dollars. They are quite profitable.” (Recruitment Specialist, Male, 32 years, 5 years experience) **Source: Researchers’ KII 2023**

This finding confirmed the submission of Enyonam (2017) that skills acquisition is important, helpful, lucrative, and worth promoting. Oye, Inuwa and Muhammad (2011) also reported that having realized the impact of ICT skills on employment generation, the Ministry of Labour and Productivity in Nigeria says the Federal Government is set to declare total war on unemployment and joblessness in the country with the use of ICT systems and operations which is aimed at training unemployed Nigerians. This result also confirmed Omene (2021) result that skill acquisition contributes meaningfully to employment generation and economic development. It also finding corroborates the empirical studies of Magbagbeola (2004),

Emeka (2011) and Donjor, Stephen Tamaraye (2011) that ICT skill acquisition training contributes meaningfully to graduates' employability prospects.

Conclusion and recommendations

Based on the evidence provided in the research through a survey and key informant interview, and inferential analysis of the graduate employability with specialized ICT skills, the study concludes that graduates in Ibadan metropolis could only boast of the basic ICT skills, which is what is required to work as a graduate, however, the high rate of unemployment has forced recruiters to demand higher skills and qualifications as a way of discouraging many applications.

It was also established that remunerations are set on the basis of the skills required to complete the job and the relative difficulty required to find suitable applicants for the specific position. Hence, it is apt to conclude that while basic ICT skills are the requirement for a graduate role, getting a lucrative and well-remunerated job would require advanced and specialized ICT skills, which is currently not common among graduates in Ibadan metropolis.

Having established in the study that the current ICT skills level common among graduates is insufficient to land a lucrative graduate job, the study has the following recommendations to help graduates maximize the opportunities in ICT.

1. Higher education stakeholders should improve on the adoption and use of technology for tertiary education to ensure students are well groomed to because technology savvy after graduation such that they can leverage this to improve their employability prospects upon graduation.
2. Tertiary education providers and government agencies like National Directorate of Employment (NDE), National Youth Service Corps (NYSC), and others should leverage their platform and access to graduate population to initiate career education and reorientation programmes to improve graduates' knowledge of the contemporary dynamics in the labour market.

References

Abiodun, S. O. (2010). Analysis of Mismatch Between Demand and Supply of Skills and University

Graduate Unemployment in Nigeria. Diss, Education, Lagos State University.

Allmann, K. and Blank, G. (2021). Rethinking digital skills in the era of compulsory computing: methods, measurement, policy, and theory. *Information, Communication & Society*, 24(5), 633-648.

Aluko, Y. (2014). Employers' perceptions of the employability skills of new graduates in Nigeria. *Journal of Educational Review*, Vol. 7.

Bejinaru, R. (2019). Impact of digitalisation on education in the knowledge economy. *Management Dynamics in the Knowledge Economy*. 7(3), 367-380.

Choi, J., Dutz, M. and Usman, Z. (2020). The future of work in Africa: Harnessing the potential of digital technologies for all. *Africa Development Forum*. World Bank.

Fajana, S. (2000). *Functioning of the Nigerian labour market*. Labofin and Company, Lagos, Nigeria.

International Finance Corporation (2019). *Digital skills in sub-Saharan Africa: Spotlight on Ghana*. <https://www.ifc.org/>.

International Labour Organisation (2012). *Global employment trends for youth 2012*. Retrieved on 5th November 2022, from <http://www.ilo.org/>.

International Labour Organization (ILO) (1996). Meeting the Challenges of Rising Unemployment and Underemployment. *Report submitted by the ILO's Employment Policy Strategy Formulation Mission to Nigeria*.

Longe, O. (2017). Graduate Unemployment in Nigeria: Causes, Consequences and Remediable Approaches. *American International Journal of Contemporary Research*, 7(4).

Mastercard and Kaiser Associates (2019). The global gig economy: Capitalizing on a ~\$500B opportunity. Mastercard. Retrieved on 25th November 2021, from <https://newsroom.mastercard.com/wp-content/uploads/2019/05/Gig-Economy-White-Paper-May-2019.pdf>.

McKinsey (2017). *Digitally-enabled automation and artificial intelligence: Shaping the future of work in Europe's digital front-runners*. McKinsey and Company.

Ndifon, X. (2009). Exclusive interview on the problem of Unemployment in Nigeria. *Fountain Magazine* 44 ed. December, 2009:15-17.

National Bureau of Statistics (2020). Labour force Statistics: Unemployment and underemployment report- Abridged labour force survey under COVID-19 (Q4, 2020). National Bureau of Statistics (NBS).

National Bureau of Statistics (2010). Labour Force Survey March 2009. *Statistical News: Labour Force Statistics in Nigeria*.

NUC (National Universities Commission) (2004). *Labour Market Expectations of Nigerian Graduates*.

- Report of National Needs Assessment Surveys.* Abuja, Nigeria.
- Odufowokan, B. A. (2006). The need for computer in the 21st century Nigeria. Seminal Paper Presented at the Department of Educational Management and Business Education. Olabisi Onabanjo University, Ago-Iwoye, August 2006.
- Oluyomi, S. and Adedeji, S. (2012). Skills Mismatch Among University Graduates in the Nigeria Labour Market. *US-China Education Review*, Vol. 2, pp 90-99.
- Oppong, S. and Sachs, S. (2015). Managing Graduate Unemployment in Emerging Economies Critical Analysis of the Skill Mismatch and Over Supply Theses. *JEL poslovnaizvrnost Zagreb, God*, ix, vol 1. JEL classification, May, Pp. 125-135.
- Oye, Inuwa and Muhammad (2011). Role of information communication technology (ICT): implications on unemployment and Nigerian GDP. *Journal of International Academic Research* (2011), Vol. 11, No. 1.
- Pitan, O. S. and Adedeji, S. O. (2012). Skills Mismatch among University Graduates in the Nigerian Labour Market. *US-China Education Review A1*, Pp. 90-98.
- Shadare, A. and Elegbede, S. T. (2012). Graduate Unemployment in Nigeria: Causes, Effects and Remedies. *British Journal of Arts and Social Sciences*, 5(2).
- Sodipo, O. O. (2014). Employability of tertiary education graduates in Nigeria: closing the skills-gap. *Global Journal of Human Resource Management*, 2(3), 28-36.
- Taiwo, O. S. (2013). Unemployability of Nigerian Graduates –Myth or Reality. *Article in Daily Independent Newspaper, 2nd October 2013*. sourced from <http://dailyindependentnig.com>.
- UNESCO (2017). *Digital skills for life and work, Working Group on Education*. UNESCO Broadband Commission for Sustainable Development. United Nation.