

# Educational Statistics As A Precursor To Skill Acquisition In Computer Data Processing For Self-Employment In The 21<sup>st</sup> Century Nigeria

BY

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#### Abstract

This paper examined educational statistics as a facilitator of computer data processing skill acquisition for selfemployment in the  $2I^{st}$  century Nigeria. In spite of the breakthroughs in science and technology in the  $2I^{st}$  century leading to economic prosperity of many nations, unemployment rate is at a soaring rate in Nigeria. Evidence has shown that available job opportunities in the public and private sectors are grossly inadequate for the teeming graduates. The need to make more of the school leavers and graduates of the Nigerian tertiary educational institutions to be job creators (employers of labour or entrepreneurs) rather than job seekers has been stressed in different quarters. A substantial number of graduates of Teacher Education as a component of tertiary education are proven and successful entrepreneurs who have made significant contribution in job creation effort through the establishment of private schools across the length and breadth of Nigeria. However, there seems to be scanty or no literature that have explored skill acquisition opportunity in computer data processing for useful living. Measurement and Evaluation, and Introduction to Educational Research and Data Processing are two courses in the Teacher Education programme which impact requisite knowledge, skill and experiences to learners in educational statistics. If the knowledge, skills and experiences in educational statistics are properly harnessed, it could facilitate skill acquisition in computer data processing for useful living. It is therefore imperative for Nigeria to strengthen skill acquisition as a sustainable measure and strategy to stem the tide of unemployment among school leavers and graduates to become self-employed and job creators.

**Key words:** *Skill acquisition, data processing, measurement and evaluation, educational research, self-employment* 



## Introduction

Education is an efficient tool for human capital development as it facilitates the acquisition of relevant knowledge, skills and competencies. It also offers seamless opportunities to learn new skills to keep abreast of changes in the society. However, the quality of manpower available to any society can partly be measured by its capability to advance economic prosperity. For instance, Ajayi and Iwendi-Elege (2018) view education as a tool for equipping individuals with requisite knowledge, skills and abilities to function effectively in the society through provision of limitless opportunities for gainful employment. However, the realization of the above goal of education seems to have been limited by the upsurge in the rate of unemployment. The reality of unemployment in Nigeria is better illustrated by the inability to provide jobs to match with a consistently high annual turnout of graduates from its tertiary educational institutions. This gap or imbalance is what is commonly referred to as unemployment. High rate of unemployment has turned the dreams and aspirations of many Nigerian graduates to secure jobs after graduation to a mere treasure hunt. Again, this shows that acquisition of academic certificate(s) is no longer a satisfactory condition for securing employment opportunities without a complementary skill acquisition in high demand.

Reduction of unemployment through job creation has remained the major goals of economic development strategies pursued by successive Nigeria Government (Chiekezie, Nzewi & Erhinnwionose, 2016). It is however sad to observe that strategies pursued by successive governments particularly efforts at attracting local and foreign direct investment (FDI) seem to have yielded less than the desired outcome in unemployment reduction. In recognition of the above intricacy, the Federal Republic of Nigeria [FRN] (2014) took a bold step to reposition and



refocus the education system by revising and updating the 5<sup>th</sup> edition of the National Policy on Education (NPE) for accelerated attainment of social and economic transformation, wealth creation, poverty reduction and employment generation. In this regard, the Federal Republic of Nigeria (FRN) addresses the noticeable gaps in the content and provision of the education system by introducing 34 trade/entrepreneurship subjects into the curriculum of secondary schools (NPE, 2014) and entrepreneurship education into the minimum academic standards (curriculum) of Colleges of Education and benchmark minimum academic standards (BMAS) for universities. This innovative development was conceived to enable students to choose an area of interest in skill acquisition or entrepreneurial education that will make school leavers and graduates more of employers of labour (entrepreneur or job providers) rather than job seekers.

It is evident and fact based that education furnishes its recipients with relevant employable skills, abilities and competencies. In like manner, Teacher Education as a component of tertiary education in Nigeria equips its recipients with pertinent knowledge, skills and experience in educational statistics which can be harnessed for suitable skill acquisition in computer data processing for self employment. Measurement and Evaluation, and Introduction to Educational Research and Data Processing are two courses in Teacher Education programmes that enable students to acquire requisite theoretical and practical knowledge, experiences and skills in educational statistics. Feshchuk (2018) notes that skill acquisition is the ability to acquire practical knowledge in new conditions and on the basis of the abilities and experiences a person had previously. It is therefore justifiable that graduates of Teacher Education programmes can be said to have gained the basic knowledge and experiences in statistical analysis which can form the basis to learn a new but related skill for self-employment.



To learn a new skill and attain proficiency in the use of computer data processing, there is need for a sound background knowledge and experience in classification of statistics, levels of data or scales of measurement, conditions for applying a statistical test and conditions for drawing inferences or conclusion on any choice of test of statistics. Globally, fabrication or falsification of data, research procedures or data analysis; or making poor quality data analysis to support a predetermined result and suppression of inconvenient data constitute unacceptable professional conducts of researchers. It is the compliance with the above code of ethics that places high demand on experts in computer data processing. It has therefore become imperative in the light of the foregoing for students or graduates of Teacher Education programmes to tap into the viable opportunity offered by scientific and technological breakthroughs in information and communication technology (ICT) to acquire computer data processing skills for useful living in 21<sup>st</sup> century Nigeria.

# **Concept of Unemployment and Job Creation**

Unemployment also known as joblessness refers to "all those of working age who were not in employment, carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity" (International Labour Organization, 2019, p. 6). The National Bureau of Statistics (2011) defines unemployment rate as the proportion of those who are looking for work but could not find work for at least 40 hours (less than two days) during the reference period to the total currently active (labour force) population. Unemployment remains an economic reality that has defied measures and strategies adopted by successive governments in Nigeria. There is a consensus view that unemployment has remained one of the developmental problems confronting nations of the world at varying



degree of prevalence but with a high rate of prevalence in developing countries such as Nigeria (Efe-Imafidon, Ade-Adeniji, Umukoro & Ajitemisan, 2017; Chiekezie, Nzewi & Erhinmwionose, 2016; Ekong & Ekong, 2016).

According to International Labour Organization (ILO) (2019, p.4), "unemployment rate is a long-standing key labour market indicator, widely used around the world to communicate on the performance of the labour market and the economy's ability to generate enough jobs for jobseekers". ILO further stressed that unemployment rate is calculated as the percentage of persons in the labour force who are unemployed. Odia and Odia in Efe-Imafidon, Ade-Adeniji, Umukoro and Ajitemisan (2017) report a 19.7% unemployment rate in Nigeria which is above world average of 14.2% by the World Bank, with 41.6% unemployment rate reported for youth between the age brackets of 18 - 24. In credence to above statistic, the National Bureau of Statistics (NBS) report of 2019 shows a disturbing unemployment rate of 23.1% and underemployment of 16.6% while unemployment rate is projected to hit 33.55 by 2020 (Premium Times, May 2, 2019 reposted Saturday March 14, 2020).

It has been observed that several years of unbridled corruption, mismanagement and sheer waste have hindered economic growth in Nigeria (Gbagolo & Eze, 2014) resulting to under-utilization of the nation's resources resulting in unemployment and abject poverty (Bakare, 2013). Gbagolo and Eze remark that Nigeria is endowed with immense human resource with over 534 tertiary institutions that turn-out graduates yearly into the labour market without commensurate job opportunities in the private and public sectors to absolve them in spite of the nation's huge material resources. According to Salami in Ankeli (2019), there is a 55% rate of unemployment among university graduates in Nigeria. It is obvious from the above statistics that



more than half of graduates in Nigeria are jobless and are in desperate need of gainful employment opportunities.

On the other hand, job creation has occupied the centre of public concern and attention in recent time. Hence, the clarion call by stakeholders on the need to make much more of school leavers and graduates of tertiary educational institutions job creators (employers of labour or entrepreneurs) rather than job seekers through sustainable skill acquisition programmes. It is however pertinent to submit that many graduates of Teacher Education have made significant contribution to job creation effort through the establishment of private schools across the length and breadth of Nigeria (Thom-Otuya & Okere, 2010).

Ankeli (2019) defines job as work done for which regular payment is received. The author avers that job creation is dependent on acquisition of entrepreneurial or scientific skills by an entrepreneur or personnel helpful in creating secured jobs either in the industrial sector or making the individuals self-reliant. This implies that for any job creation efforts to be sustainable, it is expected that the business owner or the personnel acquires entrepreneurial or scientific skills. The prescription of scientific skills for job creation is arguably inculcated into graduates of Teacher Education programmes through the adoption of scientific method in the conduct of educational research indicates that educational research is scientific in nature (Nworgu, 2015; Ajayi & Abanobi, 2017). In other words, data analysis and interpretation skills acquired by Teacher Education graduates are scientific skills which meet Ankeli's criteria for job creation. It is evident that skill acquisition in relevant fields in high demand remains a viable job creation option for the teeming graduates that saturate the labour market. In effect, knowledge of



educational statistics acquired by Teacher Education graduates can be tailored towards skill acquisition in computer data processing leading to self-employment and job creation.

## The Concept of Skill and Skill Acquisition

According to Adeyemo in Ankeli (2019), skills are abilities and competences needed to perform a task. Speelman in Ekong and Ekong (2016) defines skill as the ability to do something well, usually gained through training or experience. Ankeli avers that skills represent particular ways of using capacities in relation to environmental demands, with human beings and external situation together forming a functional system. Stephen, Stump, Roger, Dumber and Thomas in Ankeli (2019) view skills as the quality of performances which are developed through training, practice and experience; and include efficiency and economy in performance. From the foregoing, there are three emerging facts about skill namely: it is the ability to do something well; it is acquired through experience and training; and it is measured against a defined standard.

Skill acquisition on the other hand, refers to the development of a new skill, practice or new way of doing things usually gained through training or experience (Speelman in Ekong & Ekong, 2016). According to Feshchuk (2018), skill acquisition is the ability to acquire practical knowledge in new conditions and on the basis of the abilities and experiences a person had previously. It can be observed from the foregoing that skill acquisition is synonymous to skill development; the tendency to learn something new which is crucial to self employment..

Feshchuk asserts that entire human existence is based on skills acquisition which is usually in constant process. This implies that skill acquisition is required to either adjust to the reality of ever changing labour market demand or remain relevant in a constantly changing



world. It is instructive to note that skill acquisition in Nigeria where unemployment and poverty are at alarming rates is imperative as acquisition of academic credential is no longer sufficient for gainful employment opportunities. Usen and Offiong (2016) affirm that the Nigerian government has laid emphasis on entrepreneurial education for skills promotion in different fields for reduction in unemployment problem. In effect, skill acquisition has been identified as a viable strategy or measure to check unemployment among graduates in Nigeria.

## Educational Statistics as Facilitator of Skill Acquisition in Computer Data Processing

Teacher education is a component of tertiary education in Nigeria with various courses impacting a variety of relevant skills in its recipients. Educational statistics is knowledge and skill acquisition based contents taught in Measurement and Evaluation; and Introduction to Educational Research and Data Processing courses in Teacher Education programmes in Nigeria.

Educational statistics gives theoretical and practical experience and insight into assignment of quantitative values to variables, selection of suitable statistical method of analysis and making valid interpretation and inferences form data. Ajayi and Abanobi (2016) affirm that measurement and evaluation advances the right knowledge in the conduct of research activities as scores generated by teachers and public examination bodies accumulate into useful data in the conduct of research activities.

On the other hand, Educational Research is a diligent use of scientific process of identifying, classifying, analyzing, interpreting and drawing inferences in order to solve educational problems (Ajayi & Abanobi, 2017). Introduction to educational research and data processing inculcates scientific, inductive and logical thinking ability in students for problem



identification and provision of solutions (Nworgu, 2015). In essence, educational research inculcates logical reasoning ability in students evident in scientific method of collecting pertinent data, accurate analysis of data and making logical interpretation of data and inferences which are inviolate steps in any empirical studies. Thus, educational research equips students with capabilities in statistical analysis.

The two courses on educational statistics are strongly linked as they offer students requisite background knowledge and experience in manual data processing. Basically, the experiences acquired in the two courses are precursory to skill acquisition in computer data processing for useful living. However, one of the apparent gaps in the application of traditional method of teaching (chalk and talk) and learning of these education courses leading to acquisition of manual computational skills without computer application. Another persistent gap is the determination of students to merely study in order to earn high examination grades without taking into cognizance the need to sharpen their knowledge and skill in computer data processing skill which is in high demand in the labour market. It is imperative to establish here that students and graduates can hone their background knowledge and experiences in educational statistics to acquire digital data processing skills for self-employment as knowledge of educational statistics is precursory to skill acquisition for either gainful employment opportunities or self-employment.

## Theoretical Underpin for Skill Acquisition in Computer Data Processing

Dreyfus model of skill acquisition forms the theoretical foundation for explaining how someone progresses from novice to expert in learning a new skill in computer data processing based on knowledge and experience. The Dreyfus model of skill acquisition was developed by Professor Stuart Dreyfus, a Mathematician and Professor Hubert Dreyfus, a philosopher in 1972



and 1980. Dreyfus Model of Skill Acquisition has gained wider application in many other fields of studies (Berner, 1982; Sunkes, n.d; Gobert & Chasy, 2008, 2009; Lester, 2005; Ekong & Ekong, 2016).

It is a five-stage model of mental activities involved in directed skill and acquisition. The model describes how a trainee on a skill progresses through five (5) levels of proficiency in the acquisition and development of skill namely: Novice; Advanced beginner; Competent; Proficient; and Expert. These levels reveal changes in two general parts of skill performance. A trainee tends to depart from reliance on abstract principles to the use of past, concrete experience as standards. The other is a change in the perception and understanding of a demand situation so that the situation is seen less as a compilation of equally relevant bits and more as a complete whole in which only certain parts are relevant (Ekong & Ekong, 2016; Benner, 1982).

i. **Novice:** This is the first and the lowest level of mental activities involved in directed skill acquisition. Beginners in skill acquisition lack experience in the tasks they are expected to perform. In order to give learners entry to these situations, they are taught about them in terms of objective attributes. These attributes are features of the task that can be recognized without situational experience. Novice practitioners are also taught rules to guide action in respect to different attributes. Inability to use discretionary judgment is the major difficulty faced by a novice. Because novices have no experience with the situation they face, they are strictly guided by context-free rules in their efforts to performance tasks.

ii. Advanced beginner: This is the second and a more superior level of mental activities involved in directed skill acquisition. The advanced beginner posses the ability to demonstrate slightly acceptable performance. At this stage, the advanced beginner benefits from experience



of enough real situations to enable him/her note (or to have them pointed out by a mentor) the recurrent meaningful situational components, called aspects. Unlike the measurable, context-free attributes or features that the inexperienced novice uses, aspects are overall, global characteristics that require prior experience in actual situations for recognition (Ekong & Ekong, 2016; Benner, 1982). At this stage, the instructor or mentor provides guidelines for recognizing such aspects but while aspects may be made explicit, they cannot be made completely objective. That is, aspect recognition is dependent on prior experience. The advanced beginner or his/her instructor may formulate guidelines for actions in terms of attributes and aspects. These action guidelines integrate as many attributes and aspects as possible, but they tend to ignore the differential importance. In other words, they treat all attributes and aspects as equally important.

iii. *Competent:* This is the third level of skill acquisition. The competent level is characterized by a period of two to three years that a learner or trainee has been on the job. Competence develops as a result of the ability of the performer or learner to see his or her actions in terms of long-range goals or plans. For the competent learner, a plan establishes a perspective, and the plan is based on considerable conscious, abstract, analytic contemplation of the problem. The competent learner lacks the speed and flexibility of the learners who have reached the proficient level. However, the competency stage is characterized by a feeling of mastery and the ability to cope with and manage many contingencies of the profession. The competent learner's conscious and deliberate planning helps to achieve a level of efficiency and organization. Most in-service education is aimed at the competent level of achievement (Ekong & Ekong, 2016).

*iv. Proficient:* This is the fourth level of skill acquisition which is attained through continued practice. Characteristically, the proficient performer perceives situations as wholes,



and no longer in terms of aspects but performance is guided by maxims (rules or principles). However, a deep understanding of the situation is required of a proficient performer before application of maxims. Maxims reveals what would appear to the competent or novice performer as unintelligible degrees of the situation. Hence experience teaches the proficient performer what typical events to expect in a given situation and how to modify plans in response to these events. Experience based ability of a proficient performer helps him/her to make informed decision on the task.

v. *Expert:* At the expert level of skill acquisition, the trainee or learner no longer depends on analytical principles (rule, guideline, or maxim) to connect her/his understanding of the situation to an appropriate action. Through acquisition of background experience, the expert performer gains insight of the situation which enables him/her to identify and concentrate on the accurate region of the problem without wasteful consideration of a large range of unfruitful possible problem situations. In other words, the expert operates from a deep understanding of the situation at hand.

This model is relevant to the current article in that skill acquisition in computer data processing progresses begins form a level of in experience (novice) thus need the guidance of a mentor to give basic instructions and guidelines on definition of variable properties, variable label, entering of data using data view coding, transformation, analysis among other processes in computer data processing. With constant practice, the learner progresses to the second stage called advanced beginner who has acquired a minimal acceptable level of proficiency in computer data processing. To attain the stage of competence, the learner is expected to have spent between and two to three years gaining mastery and ability to cope with eventualities. The



learner in computer data processing skill acquisition moves to the stage of proficiency which is attainable through sustained practice but performance is guided by rules and principles (maxims) enabling the performer to have a holistic view of the task leading to informed decision making. The expert stage in computer data processing skill acquisition occurs when the performer depends on deep understanding of the problem and could identify the accurate areas of problem and proffer solutions without presumptions.

## Conclusion

Unemployment is a global economic problem confronting nations of the world but at varying degrees. In spite of the breakthrough in science and technology in the 21<sup>st</sup> century leading to economic prosperity in many nations, it is evident that unemployment rate in Nigeria is on a persistent yearly increase. Available job opportunities in the public and private sectors in Nigeria are grossly inadequate for the teeming unemployed graduates. It is imperative to harness the knowledge and experiences of graduates in sustainable skill acquisition to stem the tide of unemployment by making them self-employed and job creators. Therefore, sustainable skill acquisition training in computer data processing aimed at developing their knowledge, skills, minds and attitudes, will no doubt, results in self-employment in Edu-Consultancy businesses, business centres or gaining employment as data analysts in research institutes and firms leading to job creation for useful living in the 21<sup>st</sup> century.

#### Recommendations

In the light of the foregoing, it is recommended that:



- Lecturers should complement the methods of teaching and learning with innovative ways of thinking, skill development, attitudes and modes of behaviour to fully develop entrepreneurial approaches to education courses.
- Tetfund intervention funding in training lecturers and equips lecture rooms/ ICT centres with relevant ICT gadgets and software for effective teaching of skill acquisition in computer data processing.
- 3. Government at all levels and non-government organisations (NGOs) should empower unemployed graduates and young school leavers through skill acquisition training in computer data processing and provision of starter packs to start Edu-Consult businesses or business centres for self employment leading to job creation.

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