

ACHIEVING SUSTAINABLE ECONOMIC DEVELOPMENT THROUGH TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) AND ENTREPRENEURSHIP: CHALLENGES AND THE WAY FORWARD

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Abstract: The paper examines the significant roles of Technical and Vocational Education and Training (TVET) in economic development and poverty reduction in Nigeria. It also discusses the roles of entrepreneurship development for sustainable development. The paper specifically hinged on the various entrepreneurial opportunities in TVET and how it can be harnessed to achieve sustainable economic development. It was stressed that in order to enhance productivity and bring about sustainable economic development, skills development in TVET and entrepreneurship is vital. TVET plays important roles in the provision of skills, knowledge, attitude and values needed for the development and has emerged as one of the most effective human resource development strategies that Nigeria needs for sustainable economic growth especially in this era of dwindling oil price in the world market. Finally the paper highlighted the challenges to achieving this noble cause and some solutions were proffered

Keywords: Technical and Vocational Education and Training, Entrepreneurship, Skills, Sustainable Development, Wealth Creation

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INTRODUCTION

Technical and Vocational Education and Training (TVET) plays a critical role in African development. Today in many African countries TVET is viewed as a poverty reduction strategy. UNESCO (2004) identified two critical roles of TVET in the economic development of African countries and these are: the urgent need to train the workforce for self-reliance and the necessity to raise the productivity of the informal sector. In most African countries therefore efforts are being renewed to promote TVET. Onderi, Ajowi and Malala (2014) stressed that TVET is a means through which training needs of learners from different socio-economic backgrounds are responded to, thus preparing them for self employment and sustainable livelihood. This means that the youths, the poor, women and children can benefit from TVET. Nigeria has no alternative in this era of dwindling oil price to attain the needed development than to fully engage and utilize its population through active involvement in TVET and entrepreneurship for sustainable development. Drawing from the experience of the industrialized nations, the Nigerian government established a number of TVET-oriented institutions to launch the country steadily on the path of technological progress and national development in furtherance of its commitment to TVET (Besmart-Digbori, 2011). Some of the TVET-related institutions included various skills acquisition centres by MDGs, NGOs and private individuals. All these and many others failed to achieve the desired results because of some challenges that are not insurmountable as would be highlighted in the course of this discussion.

TVET has been described and defined in ways and by different authors based on purpose and function. For instance, Ekpo and Onweh (2012) defined TVET as the provision of skills, knowledge, attitude and values needed for a work place; Yusuf (2006) sees TVET as a form of education that seeks to prepare individuals for employment in recognized occupations. The National policy on education of the Federal Republic of Nigeria (FRN), (2004) defines TVET as that aspect of education that leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Despite these numerous definitions of TVET the bottom line is that TVET plays an orientation role towards the world of work and its curriculum emphasizes on the acquisition of such employable skills, which are fundamental necessities for driving the industrial and economic growth. TVET is key to building

technical and entrepreneurial work force which Nigeria as a nation needs to create wealth and move out of poverty. The expected outcomes of TVET are:

- a) To provide trained manpower in the applied science and business particularly at craft level, advanced craft and technical levels;
- b) To provide the technical and vocational skills necessary for agricultural, commercial and economic development; and
- c) To give training and impart necessary skills to individuals who shall be self-reliant economically (NPE, 2004).

On the other hand, entrepreneurship is pertinent to the analysis of how new ideas or recipes for reconfiguring objects in the material and social world can be harnessed to enhanced a nation's wealth. As posited by Kaburi, Mobegi, Kombo, Omari and Sewe (2012), entrepreneurship has assumed super importance for accelerating economic growth both in developed and developing countries. It promotes capital formation and creates wealth in the country. It is the hope and dreams of many millions of individuals around the world. Like TVET it reduces unemployment and poverty. According to Mon (2012), entrepreneurship is the dynamic prospect of creating incremental wealth. The wealth is created by individuals who assume the major risks in terms of equity, time, and/ or career commitment or provide value for some product or service. Entrepreneurship thus entails that, firstly, the creation process, creating something new and of value to the entrepreneur and of value to the audience for which it is developed. Secondly, entrepreneurship requires the devotion of the necessary time and effort. Those going through entrepreneurial process appreciate the significant amount of time and effort it takes to create something new and make it operational. Thirdly, entrepreneurship is an essential element for economic progress as it manifests its fundamental importance in different ways by identifying, assessing and exploiting business opportunities, driving the economy forward through innovative competence, job creation and by generally improving the wellbeing of society. Finally, entrepreneurship is the active process of recognizing an economic demand in an economy, and supplying the factors of production (land, capital and labour) to satisfy that demand, usually to generate profit

Conceptualization of sustainable development, TVET and Entrepreneurship

The concept of sustainable development means different things to different people. This concept like globalization is hotly contested. For some, sustainable development implies commitment to sustainability with a consequent reduction in economic growth while, for others the concept is seen as integral to a new era of economic growth (O'Brien and Williams in Akpan and William, 2014). According to Akpan and William (2014), the concept was first locally and internationally used in 1987 by the world commission on environment and development referring to it as the development that meets the needs of present generation without compromising the needs of the future generations. Jhingan (2005) sees sustainable development as the development that 'keeps on going'. It lays emphasis on the creation of sustainable improvement in the quality of life of all people through increases in real income per capita, improvement in education, health, natural environmental resources among others. In this connection sustainable development should be continuous and permanent.

TVET is a specialized education designed to empower learners through the development of their technical skills, human abilities, cognitive understanding, attitudes and work habits in order to prepare learners adequately for the world of work or position them practically for self-employment after graduation (Winer, 2000 & Oni, 2007). Similarly, UNESCO and International Labour Organization in Badawi (2013) unanimously defined TVET as: "A comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life" (p. 284). Considering the importance of TVET to national development, it has attracted different names such as Technical Education (TE), Vocational Training (VT), Vocational Education and Training (VTE), Technical and Vocational Education and Training, Occupational Education (OE), Apprenticeship Training (AT), and Career and Technical Education (CTE). The Ministry of Education has consistently articulated its commitment to TVET in the national policy on education (NPE) because of the prospects of poverty eradication, job creation, sustainable development and actualization of the Transformation Agenda.

Apart from poverty reduction potential of TVET, its effective implementation could also serve as instrument for curbing social exclusion, where cost of higher education is out of the reach of the majority and as antidote for youth unemployment, where the labour market is saturated (ETF, 2005). Furthermore, Maclean (2011) asserts that TVET if well positioned could play multidimensional roles of stimulating economic growth, social development, improving conventional education, empowerment, wealth creation, poverty reduction and skills enhancement. In a nation with recurring incidences of youth restiveness, TVET is well suited to help youths and adults become self-dependent and self-reliant, while for those working in the industry, TVET is helpful in the areas of skills enhancement, mitigation of high job turnover and risks of obsolescence (Okolocha, 2012).

In a similar vein, UNESCO (2001) stressed that Technical and vocational education as reparation for an occupational field should provide the foundation for productive and satisfying careers and should:

- (a) lead to the acquisition of broad knowledge and generic skills applicable to a number of occupations within a given field so that the individual is not limited in his/her choice of occupation and is able to transfer from one field to another during his/her working life;
- (b) at the same time offer both a thorough and specialized preparation for initial employment, including self-employment, and also training within employment;
- (c) provide the background in terms of knowledge, skills and attitudes for continuing education at any point in the individual's working life.

There is a pervasive tendency to equate entrepreneurship development with self development through TVET. Many self-developed individuals are indeed entrepreneurs.

Entrepreneurship development is all about helping people to start and grow dynamic business that provide high value added (Mon, 2012). Entrepreneurship programmes should be formulated to identify risks and determine the likelihood of success, identify the factors that affect the levels of entrepreneurship in a society. In most cases these factors include the perception of opportunities, degrees of respect accorded entrepreneurs,

acceptance of wide disparities in income and family environment which is oriented towards business.

Entrepreneurship programmes require a selection process that attempts to identify those targets that have some of the key pre-requisites for entrepreneurial success. Beneficiaries may be individuals or groups.

Entrepreneurship programmes should help aspiring entrepreneurs to recognize and design unique innovative business opportunities, based on an analysis of local conditions and their own special skills. Entrepreneurship development programme may therefore include support for:

- Entrepreneurship orientation and awareness
- Development of the competencies (skills, experience and attitude) necessary to recognize a market opportunity and organize resources to meet it
- Improvement of business performance for growth and competitiveness

Technical Vocational Education and Training (TVET) and entrepreneurship development are very cardinal to economic development of any country. Training in general has potential benefits which accrue to the individual, to an organization and to the country as a whole. To individuals, training enhances their future earning potential, career, progression and employability. To the unemployed, training offer them capacities to find ways of earning a livelihood. This can be through self-employment or setting up of business. At organizational level, training results in company productivity, profitability and competitiveness. This in turn enhances its existence. With productivity and high profits, the company will contribute to the wealth of the country through taxes. TVET serves to prepare learners with the skills they need to succeed in the workforce. Entrepreneurship development helps adding value to the skills by improved livelihood and thus sustainable development. Technical and Vocational Education and Training is the candle of hope lighting the darkness of political inefficiency, poverty and human degradation. It could be truly said that a country's development and progress (ability to combat global economic crisis) largely depends on the availability and quality of its human resources, people with the right skills and the right attitude (TVET skills) and entrepreneurial skills.

The development of a nation's economy is contingent on the quality of skilled human capital in the pool. Vocational and technical education provides student with life skills that will make them to be productive entrepreneurs as it engenders creative and innovative ideas; enlarges the economic pie and increases personal freedom. The business environment is changing at a fast pace due to the rapid emergence of technology and globalization. This has added to the increase in demand of valuable human skills necessary to respond to such drastic changes for economic progress. As a channel for entrepreneurial skill acquisition, VTE play the role of improving the economic situation of Nigeria through production and distribution of goods in different areas of specialization. This is achievable through the training of the students in different specialized fields. In the long run, this will help the students to establish their own enterprise as seen in China, Turkey, India, Japan among other countries that have succeeded economically through vocational education. This is in line with the views of Lawal (2014) who opined that "for a country to advance socially, economically and technologically, its citizens must be creative and productive with a majority becoming job creators rather than job seekers" P.54. The author concluded by emphasizing that optimum attention and recognition is to be giving to the promotion of TVET in Nigerian if the country wants to attain great achievement in productivity and sustainable economic environment and natural development.

According to Sheieh, Wang and Chon (2009), lifelong TVET will gradually improve the economic and social development of both the people and the country by making vocational education a channel for exploitation of human resources. Therefore, TVET practitioners have a role to play in terms of observing and monitoring students' behaviors, attitudes and actions within the environment for proper skill alignment. The behaviour observed will help VTE practitioners to counsel, guide and advice students on their choice of skills. This will help to ensure that students enrolled in appropriate callings for effective performance and sustainability of the skills learnt. With proper guidance and counseling, students can acquire skills in dealing with finance and accounting matters, economics, business, ICT, fine and applied arts, music and entertainment, building , auto-mobile, woodwork, electrical and electronics, metal works and agricultural activities such as fishery,

poultry, snarling, piggery, crop planting among other numerous skills that will make them self-reliant, self dependent, self fulfilled and self-actualized.

Entrepreneurial opportunities in TVET

Nigeria is naturally endowed with entrepreneurial opportunities. With its large human and material resources, the country still largely depends on oil for its revenue. On a continuous basis, production as measured by Gross Domestic Product (GDP), employment, investment spending, capacity utilization, household incomes and business profits all are falling (Diyoke, 2014; & Okeke and Eme, 2014). According to the National Bureau of Statistics (2015), Nigeria suffers worsening poverty and unemployment rates of over 70% and 25% respectively. This is a reflection of symptoms of bad governance characterised by lack of commitment, inconsistency in policy, corruption among others. This statistics justifies the assertion made by Uzonwanne (2015) that the global financial and economic crisis have revealed Nigerian's vulnerability to external, economic shocks because of its over dependency on one source of revenue, the oil. It is against this background that Chinda & Bello (2016) stressed that the negative socio-economic snapshots highlighted above require a steady push through TVET as a specialised education designed to empower learners through the development of technical skills, human abilities, cognitive understanding, attitudes and work habits in order to prepare learners adequately for the world of work or position them practically for self-employment after graduation.

TVET is part of the total education offerings in technology education in the national education system. Its province is technology education below the university level and is delivered mainly in two modes: formal and non-formal modes; the formal mode of delivery occurs in the formal institutions where curriculum is hierarchically structured and chronological arranged from primary to tertiary levels of education. In Nigeria the non-formal mode of TVET has the larger share of the training market. It consists of the various forms of apprenticeship schemes, custom and tailor-made programmes meant to impact different types of the educational process. There is the informal approach to TVET-the apprenticeship system whereby a self-directed individual acquires attitudes, values, skills and knowledge for

learning and doing work as part of living experience. TVET is about work (occupation) and training for work.

Education according to the national policy on education of FRN (2004) is an instrument 'per excellence' for affecting national development. All the modern developed economies of the world are built on knowledge, skills and expertise in TVET and entrepreneurship development. More Nigerians need to acquire entrepreneurial skills to be able to convert knowledge and other resources into goods and services that will attract income. The Federal Republic of Nigeria has identified five types of technical education institutions outside of the university. These include the pre-vocational and vocational educational programmes of technical colleges at the post primary level. At the tertiary level it is offered at the polytechnics, monotronics and colleges of education (technical). The goals of technical and vocational education and training are:

- To provide manpower in applied science, technology and commerce particularly at the sub-professional level
- To provide the technical knowledge and vocational skills necessary for the agricultural industry, commercial and economic development
- To provide people who can apply scientific knowledge towards solutions for environmental problems
- To offer an introduction to professional studies in engineering and other technologies
- To offer training and necessary skills that will lead to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant
- To enable our young men and women to have an intelligent understanding of the necessary complexities of technology.

Ojo in Osam (2013) opined that the most important characteristics of a system of education are that it must be relevant in functional terms and the content must be selected and designed to cover the spectrum of engineering

needs of the community (in terms of skill and manpower development). As earlier stated in this study, at the pre-vocational (the junior secondary school) level, the core courses include; woodwork, metal work, electronics, mechanics local crafts, home economics and business studies. At this level students could go on an apprenticeship system or some other form of out of school vocational training (Fafunwa, 2010). At the Vocational (senior technical level), in addition to six other subjects that would qualify the individual to proceed to tertiary technical education, individuals are specialized in either of the following trades: mechanical engineering trade, electrical engineering trade, building engineering trade, business education, home economics, agricultural mechanization among others.

Having identified the important roles of TVET in sustainable development, the various entrepreneurial opportunities in TVET are itemized and discussed below

- Mechanical engineering trade at the technical college level: this trade is made up of: welding and fabrication, panel beating and car body works, air conditioning and refrigeration, auto electrical works, among others. Individuals who acquire skills in any of these trade- related areas can establish and manage his business and generate wealth. An entrepreneur is one who organizes and manages a business undertaking, assuming the risk, for the sake of profit (Okeke and Eme, 2014). Entrepreneurial activities are essentially different depending on the type of organization and creativity involved.
- Electrical engineering trade: this trade is made up of the following; electrical installation and maintenance works, radio and television works. Graduates of TVET and prospective entrepreneurs, who acquire the skill in these areas can open up a shop, acquire the necessary instruments for trouble shooting and the needed tools. Supply the needed spare parts, electrical wiring equipment, tools and materials to create wealth. All these are good ventures for entrepreneurship
- Building engineering trade: the components of this trade include; carpentry and joinery, block laying and concreting, plumbing works, etc. rural development and urban development is on the increase with houses, schools, and many other

construction projects going on every day. This is a huge opportunity for those who possess the skills and scientific technique. The technologies found in many of these communities are old and time consuming. Successful entrepreneurs can venture into producing efficient and cost effective bricks to meet the demand of their customers.

- Home economics: Graduates of TVET and prospective entrepreneurs can engage in the establishment of food restaurants, laundry services, bakeries among others to create wealth
- Agricultural mechanization: Breeding of seedlings of food and cash crops, distribution of farm inputs like fertilizers, chemicals. This can generate wealth to the individual and the nation at large.

Skills acquisition in TVET programmes and the knowledge of entrepreneurship can lead to sustainable economic development of the country. Jobs have to be created by and for the people. By innovative processes and or products, entrepreneurs create jobs for themselves and others. Entrepreneurship is the most effective method for creating new enterprises, and bringing new products and services to the market. These entrepreneurial activities significantly affect the economy of a society by building the economic base and providing job opportunities. To be enterprising is to keep your eyes open and mind active. It is to be skilled enough, and discipline enough to seize opportunities that present themselves regardless of the environmental influence

Challenges of achieving sustainable development through TVET and Entrepreneurship

The challenges faced by entrepreneurs in developing countries are monumental and quite similar as highlighted by Ihugba & Njoku (2013) and Agu & ayogu (2015). Some of the challenges are as follows;

1. **Lack of credit facilities:** Potential Nigeria entrepreneurs go through many hardships when trying to access credit for their businesses. Though, there is a wide range of financial institutes that offer business loans, they usually charge high interest rates deterring aspiring entrepreneurs. For instance, major banks have pegged their lending

rates to as much as 28% deterring potential entrepreneurs who are mostly low income earners. Other obstacles faced by our entrepreneurs include severe collateral conditions set by banks and other lending institutions.

2. **Corruption:** Widespread and all present corruption that makes the procurement of licenses, permits, goods and services from government agencies and even the payment of taxes, levies are made difficult without playing the game i.e. paying bribes and kickbacks.
3. **Inconsistent Government Policies:** Policy inconsistency is really a challenge an entrepreneur will have to tackle if he must succeed in Nigeria. Governance is something entrepreneurs have no control over, all that the entrepreneurs can do is to influence government's policy with the view to enact favorable business laws. But he must have political clout and massive resources to be able to influence government's policy so the best strategy to combating the ever changing policy of the government is to keep a keen eye on laws and swiftly adjust your business to align with the policies.
4. **Multiple taxation:** One other sensitive challenge that is encountered by majority of Nigerian entrepreneurs is multiple taxation. Although entrepreneurs in a country have a responsibility of funding the government through paying taxes most of the taxes charged on entrepreneurs is not lawful and has the effect of increasing the cost of doing business. Although Nigeria's Companies Income Tax Act (CITA) has approved only 39 taxes and levies, there are over 500 various levies and taxes that are imposed by state and local government agents. These taxes are questionable and in case where they are mostly duplicated and this has the effect of increasing the cost of doing business.
5. **Poor state of the country's Infrastructure:** The state of Nigeria infrastructure can be deemed to be a nightmare to both entrepreneurs and the rest of the country's population. With the existing infrastructure deteriorating and in some places it is non-existent; the cost of doing business has tremendously gone up. The state of the country's road network makes it hard for entrepreneurs in agricultural sector to transport harvested produce from farm to processing factories. According to a report released by World Bank, Nigeria's pace of socioeconomic development and growth is way below what we can

achieve. This is mostly because of the erratic supply of electricity which has negatively affected many businesses. The outcome of power problems has prompted generate power through expensive ways that have in turn increased their production costs and made their products uncompetitive due to high prices.

6. **Failure to Adapt to changing Business Environment:** Majority of those who venture into MSMEs (Micro, Small and Medium Enterprises) do so because of their need to make money and in almost all cases, such entrepreneurs lack relevant and adequate information about the businesses they engage in. In the event where problems arise, most of these business owners lack sufficient problem solving skills and in the end they find it hard to survive. With the growth in the telecommunication sector since the introduction of GSM in 2002, Nigeria has become one of the fastest growing ICT market not only in Africa but also worldwide. This presents a challenge to entrepreneurs who have not embraced technology, and who are now finding it hard to remain relevant in the competitive business environment. For existing and potential MSMEs to survive and be relevant, they must adopt to the changing environment and embrace technology.
7. **Low Standard of Education:** There is no gainsaying the fact that education is the key to knowledge and it plays a strong role in forming the burgeoning entrepreneur. The world today is a global village and since intending entrepreneur must be conversant and in tune with the events around and about him, education becomes a critical factor in preparing and empowering the entrepreneur with the qualities required of him.
8. **Security Issues-** When there is no guarantee of security of lives and properties, it is difficult to run a successful venture. According to Arizona (2009), Nigeria has become a den of kidnapping and resulting in incessant hostage taking. There is also the Boko Haram insurgency, the Niger Delta militants, the Fulani herdsmen and hosts of other. All these scare the entrepreneur to venture into entrepreneurship.
9. Getting venture capital to finance entrepreneurial endeavor in Nigeria is very difficult because of economic and political instability.
10. The policies of Nigerian government are a barrier to the success of large -scale entrepreneurial success for many Nigerians. The

government is plagued by corruption and greed. The government systematically ignores laws that are already in place to protect and promote free enterprise.

Technical and Vocational education and training unfortunately experienced serious neglect right from the on-set of western education in Nigeria. With the coming of the missionaries along with western education, technical education was accorded low priority as the emphasis was then completely on literary education. This has created a situation whereby the majority of Nigerian youths were trained for clerical and or white collar jobs and so failed to develop practical skills, (Osam, 2013). In addition to the weak starting point of TVET, it bedeviled with following challenges: poor infrastructure, inadequate and poorly motivated teachers, inadequate funding, inconsistency in educational policy, obsolete and dysfunctional equipment, poor maintenance culture, low prestige accorded the products of TVET, lack of political will among others. All these have hampered the realization of the full benefits of TVET in Nigeria. Thus, if it is TVET that must be used to transform the Nigeria populace of the 21st century into knowledge based workforce able to power the economy and advance the cause of economic production and service for national prosperity, then it be free from all these challenges. In addition, it must be free from the inadequacies in; access and equity, curriculum and curriculum delivery, teacher production and certification, teacher remuneration and incentives, national assessment and certification, monitoring, research and evaluation, academic and professional progression of trainees and marketing of TVET.

The way forward

The following suggestions were to made to enhance effective entrepreneurship and TVET for sustainable development in Nigeria;

- i. Sustainable development of TVET and entrepreneurship should be taken serious by all tiers of government
- ii. Entrepreneurs should be encouraged to come up with proposals for equity and loan funding in their choice areas in TVET
- iii. Federal government should develop a national policy and strategy for the development of entrepreneurship activities particularly in TVET-related areas with clear cut plans and implementation systems and procedures

- iv. Government should promote, encourage and facilitate Non-governmental Organizations to play effective role in assisting prospective entrepreneurs in TVET –related areas
- v. TVET programmes in Nigeria should adequately be funded with the required manpower and functional equipment
- vi. Entrepreneurial activities in TVET should be monitored and evaluated to assess the level of progress in terms of profit making and advancement in technology.
- vii. Strengthening the partnerships between Nigeria and other nations that have developed through efforts made in TVET
- viii. Establish more linkages between TVET and other sectors
- ix. Government should encourage continuous research to deepen the understanding of issues in the sector and provide adequate training and retraining
- x. Periodically as it may be required review the TVET programmes to reflect the need of the society, industry and labour market

CONCLUSION

Technology presents a critical factor of entrepreneurship development which can be taken as a powerful tool to obtain competitive advantage. Achieving sustainable development through TVET and entrepreneurship can provide opportunities for employment and reduce rural to urban migration and help alleviate poverty. Government at all tiers need to work more seriously by putting emphasis on TVET and entrepreneurship as solutions to the problems of unemployment and sustainable economic growth.

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BIOGRAPHY

Dr. Patrick was born on the 27th March 1967 in a village called Shuwa in Madagali Local Government Area of Adamawa state. At the age of six he attended the central primary school Shuwa. He proceeded to Government Science Secondary School Hong and later to Government Secondary School Mayo Belwa both in Adamawa state. In 1985 he secured admission to the Federal Polytechnic Mubi specifically into the NCE(Technical) Programme. He proceeded to the Federal University of Technology in 1992 for his B. Tech. (Ed), Electronics Technology programme. He did his mandatory Youth service at the Delta Power Station Ughelli in Delta state between 1997-1998. In 1999, he was employed as a graduate assistant in the Department of Electrical Technology Education of the Federal University of Technology, Yola. He proceeded for his masters' degree programme at the Abubakar Tafawa Balewa University of Technology Bauchi and completed it 2005. In 2008, he enrolled for Ph.D degree at the Modibbo Adama University of Technology, Yola and graduated in 2012. Dr Patrick has worked in many places like Nigeria Telecommunications (Nitel) Maiduguri, Delta Power Station Ughelli, and classroom teacher at the Government Technical College Mubi in Adamawa state. Presently he is a senior lecturer with the Department of Electrical Technology Education, Modibbo Adama University of Technology, Yola. He is happily married and blessed with six children. His hobbies include cycling, research and reading of novels, specifically African Writers Series. He has hold several posts in the University and member of many professional bodies like NVA, TRC, NATE NATT, etc.

Dr. Emmanuel was born in Wambilimi, Michika L.G.A on 24th December, 1968. He had his Primary education at Lughu Primary School, Michika from

1975–1981. He attended Government secondary school, Michika from 1981–1986 and later Federal University of Technology Yola. He proceeded for his at the Abubakar Tafawa Balewa University of Technology, Bauchi from 1997–2001 and Ph.D. (Modibbo Adama University of Technology, Yola 2005–2011). Started Working with Federal University of Technology, Yola as Assistant Lecturer in 1993 and promoted to the rank of associate professor in 2014 in the same institution. I am married with four children. My hobby is farming.
