

Effective Utilization of Electrical/Electronics Skills for Social Vices and Unemployment Reduction

**Agu, Paul Maduabuchi¹, Echara Wilson Sunday², Mbam, Arinze Raphael³,
Chimdia Abara Obasi⁴, Joseph Odii⁵, Ogbonnaya Orji Rex⁶**

Electrical/Electronics Technology Education (TVE), Ebonyi State University, P.M.B., Abakaliki¹
Robotics, Autonomous Systems, and Telecommunications. University of Greater Manchester²

Department of Computer Science, Ebonyi State University³

Electrical and Electronics Engineering⁴

Robotics, Autonomous Systems and Telecommunications, University of Bolton⁵

Robotics Engineering, University of Bolton⁶

Abstract- Curbing of social vices and unemployment in any society has never been an easy task. Unemployment is a major economic virus militating against the economic well-being of many countries in recent times, and this menace has resulted in increasing rate of social vices such as sexual harassment, prostitutions, arm robbery, thuggery, drugs, gambling, rape etc among youths. To solve the above problem revenging the society, this paper looked at effective utilization of electrical/electronics skills for social vices and unemployment reduction. The ultimate aim of Electrical-Electronics education is gainful employment and it is interesting to note that the discipline is dynamic, lucrative and versatile and as such have numerous employment opportunities for self-reliance. The concept of social vices, unemployment, skills in Electrical-Electronics Education; the goals of Electrical-Electronics Education in curbing social vices and unemployment rate were discussed. The paper also outlined the causes of social vices and unemployment. The skills in electrical/electronics discussed are radio and TV repair and servicing skills, house wiring skills, electrical installation skills, transformer installation and earthing skills, conduit wiring skills, battery charging skills, and electric machine coil winding skills. To this, the paper suggested that engaging youths in electrical/electronics skills or the like will go a long way in reducing the menace of social vices and unemployment among youths and that, the wide gap between the classroom and the industry should be bridged by skill acquisition policy in every ramification. And the conclusion was that, the ratio of theoretical to practical should be 30:70 because you learn what you see, but you remember what you touch.

Keywords- Electrical/Electronics; Skills; Social vices; Unemployment; Sills in Electrical/Electronics.

I. INTRODUCTION

Nigeria today unfortunately is marked by long-range high rate of social vices and unemployment for many categories of perspective workers, a declining job market for university graduates and

youths who lack skills and experience. In regards to these, the federal government through the brochure released by the national directorate of employment recently in 2020 acknowledged that about 80% of Nigerian graduates are unemployed and about 10% of them are underemployed (Daily

trust, 2020). In the year 2021, the rate of social vices among youths has hit 19.7% in Nigeria. Unemployment is a major economic virus militating against the economy and well-being of many countries in recent times, and this menace has resulted in increasing rate of social vices among citizens, therefore, increasing insecurity, prostitutions, arm robbery, thuggery, rape and among others. Oduwale (2015) supports this by stating that the unavailability of job opportunities among youth, especially graduates has been identified as one of the major factor responsible for youth restiveness and other social vices including prostitution, rape, arm robbery, destitution, political thuggery, gambling, and among others.

Social vices can be defined as those bad traits, unhealthy and negative behaviours that are against the morality of a society and frowned at by members of the society (Information Parlour, 2016). It also includes any immoral activity which is likely to become a profitable venture or activity like prostitution, gambling, pornography, drugs dealing etc which are against the moral expectations of the society. Today our youths and children are constantly involved in social vices like gambling, cultism, drug abuse, prostitution, armed robbery, indecent dressing, cyber crimes and many more as a result of not having any tangible skill which will engage them in one occupation or the other. These social vices occur when there is high rate of unemployment among youths in the society. Defining social vices from social perspective, the United Nations Development Programme (UNDP, 2003) stated that social vices is a multidimensional social phenomenon whose causes can be analytically divided into three main dimensions; income poverty causes, which is lack of income necessary to satisfy basic needs; human poverty which is the lack of human capabilities like life expectancy, material, health, education, nutrition, clean water and perceptions of well-being and unemployment, which is state of not being engaged in any payable job, or an under paying job which does not cover even half of the basic needs. Unemployment can be defined as a situation in which an individual who is employable and actively seeking for a job finds it difficult to get a job.

According to Karuna (2011), unemployment is a situation in which people above a specified age not being on any paid employment or self-employment but currently available for work during the reference period. It is referred to as joblessness, and occurs when people are without work and are actively seeking for job. The bureau of statistics (2013) specifically defined unemployment as a phenomenon that occurs when someone is able and capable to work and wants to work, but is unable to find employment. Unemployment constitutes the major impediments to social progress. A part from representing a colossal waste of a country's manpower resources, it generates welfare loss in terms of lower output thereby leading to lower income and well-being. It is seen as both macro and socio-economic problem; which arises as a result of insufficient and non-availability of jobs to correspond with the growing population. According to the researcher, unemployment is comprises of all the persons above a specified age who during the reference period, are without work, that is, are not in any paid employment. Unemployment is one of the major challenges confronting the Nigeria economy. Unemployment in Nigeria is defined as the proportion of labour force that was available for work but did not work in the week proceeding the survey period for at least 39hours (Karuna, 2011). Unemployment constitutes a series of serious problems in the society, social vices inclusive and is increasingly more and more every day.

The causes of Social Vices and unemployment are enormous. Unemployment is a consequence of several factors; in fact, it is one of the major causes of social vices among Nigerian youths. According to Karuna (2011), unemployment is a state of not being engaged at a payable job, or an under paying job which does not cover even half of basic needs, less talk about luxuries or emergencies such as sudden ill health drains and leave one in an almost perpetual state of poverty. Lack of employable skills due to inappropriate school curricula is another factor contributing to the rising of social vices. Secondly, poor knowledge of investment strategies can also lead to social vices. This occurs when an individual fails to invest with the little token he/she

is having, which when exhausted may lead to the individual trying to engage for the females. A way to keep above the unemployment and poverty line is investment. However, most people are unaware of legal and profitable investment options; as such they experience great loss, are duped or purchase liabilities in place of assets. Another major factor is that of population growth Nigeria has continued to experience high rate of population growth. This increasing population growth has produced an overwhelming increase in the youth population thereby resulting in an increase in the size of the working age population resulting to high rise of social vices and unemployment rate.

The Nigerian voice (2011) reported that unemployment give birth to social vices and as such affect not just the applicant but also his/her family and the long run the society where he lives. According to Karuna (2011), this unemployment which leads to social vices deprives a man of all sources of income therefore increase poverty and other social problems, like dishonesty, gambling, bribery, robbery, alcoholism, crime, hard drugs and kidnapping. The above social vices can be reduced by the application of practical skills inherent in electrical and electronics technology education. Skill, according to Okorie (2000) is referred to as expertness in practical ability, dexterity and tact. He explained that, to possess a skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through repetition or practice.

As a principle, electrical/electronics education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits required in the occupation itself (Okoro, 2013). Acquisition of skill in electrical/electronics is the training and retraining of the electrical/electronics learner by their teacher and constant practice by the learner. Okorie (2018), in his opinion stated that, one of the most important responsibilities of an electrical/electronics teacher is the development of skill. The teacher pre-occupation should not be to teach skills but to help acquire skills; skill must

consist of habits that must ensure adoption. Ordinarily, the acquisition of skills having complexity of most electrical/electronics skills involves three factors: imitation, repetition and occupational participation.

According to National Policy on Education, F R N (2013), the goals of Electrical and Electronics technology education to an individual offering it, is to provide courses of instruction and training, other technologies, applied sciences, business and management, leading to the production of trained manpower; electrical/electronics it gives training that impacts the necessary skills for the production of technicians, technologist and other skilled personnel who shall be enterprising and self-reliant; to train people who can apply scientific knowledge to solve environmental problems for the convenience of man; gives exposure on professional studies in the technologies and to provide the technical knowledge and skill necessary for industrial, commercial and economic development in Nigeria.

In line with the above goals, Electrical and electronics technology education is a skill oriented programme and has numerable practical skills such as; installation of electrical and electronics devices and systems, designing logic circuit (logic circuits design), Identifying appropriate tools, equipment and materials for a specific task, installing satellites dishes, using test instrument to read the numerical values of components, voltages, current and troubleshooting techniques in televisions, radio repairing, house wiring (Umar, 2010).

Priere (2011) reported that, effective utilization of skills in Electrical-Electronics such as house wiring and installation, repairs of mobile phones, radio and television, electronics equipment, tracing of faults in electronics equipment, design and construction of circuit and its application gives the individual the skill to live, learn and work as a productive citizen thereby increasing employment opportunities, self-reliance, reduce social vices in the society and also increase self-confidence.

Electrical/Electronics is one of the technology and vocational education trades in Nigeria technical colleges and is designed to meet the need of craftsmen that will repair, and service appliances such as cassette players, radio, television and other electrical wiring and appliances in order to be self-reliance.

It is very important that the Electrical/Electronics education equip their students with the needed skills that will enable them meet the need of the society in repair and services of Electrical and Electronics goods. The students may also wish to take the opportunity to further their education into higher level of Electrical/Electronics education (National Board for Technical Education (NBTE), 2001).

The curriculum of Electrical and Electronics education cover the major area of Electrical and Electronics skills which include: cable joint and soldering, battery charging and maintenance, machine rewinding and installation, industrial installation, fault detection and rectification, others are electronics devices and circuits, radio and audio frequency amplifiers, radio system and television repairs and maintenance. Anadi (2019) pointed out that it is essential that Electrical/Electronics education in the light of her essence of establishment equip the students with skills related to their field of study for employment after graduation.

Olaitan and Aguisiobo (2001) emphasized that Electrical/Electronics education as a skill-oriented discipline where acquisition of skills and knowledge are needed requires an intensive exposure of students to practical work. Such practical experiences, according to Ezema (2018) contribute to a large extent to the understanding and effective utilization of such skills in Electrical/Electronics.

Therefore, the skills in electrical and electronics technology education for effective employment opportunities and social vices reduction in Ebonyi State are as follows:

II. EFFECTIVE SKILLS IN ELECTRICAL/ELECTRONICS FOR SOCIAL VICES AND UNEMPLOYMENT REDUCTION

Radio and TV Repairs and Servicing: Odunsi (2000) explained that to achieve a successful servicing and repair of any equipment, a technician, technologist or engineer must have a thorough knowledge of the physical construction and basic principle of operation of the equipment. Servicing of any equipment is keeping to the instructions of the equipment manufacturers in order to prolong the life span of such equipment, while repair is done by fault isolation and observation test method. Observation test method is making use of the human senses to detect the fault, repair/replace. The sense of sight is used to check for loose terminals in case of sparks, bulky irregular shape of capacitors, battery, burnt resistors or fuse, short circuit or over load. Sense of touch can be done by placing one's palm on the machine to know if the machine is vibrating due to misalignment (Odunsi, 2000). Any electrical and electronics technology education graduate who possess this skill of radio, TV, fan repairs and services will always be looked for or get jobs thereby reducing unemployment and social vices in the society. The individual can go a long way in opening up a shop where people having faulty electronics can always come for their equipment to be repaired. Hence, effective utilization of these skills will drastically reduce social vices and unemployment rate in the society.

House Wiring: House wiring is the installation of electrical lighting circuit in a building. The construction of electrical lighting circuit is the major skill in house wiring. Odunsi (2008), posited that a point of light consist of lighting fittings which radiates light rays in all directions. To design and construct lighting circuit in any building, office or home, draw the wiring layout and the circuit diagram which consist of wires, switch, earthing, lamp and lamp holder. Measure and mark the building accurately. Fit the accessory base on the board wall using appropriate tools. Run the

cable/wire to/from each accessory that is the lamp, lamp holder and switch. Complete, continuity and functionality test (Hindson, 2008). When this skill is effectively utilized in the society, any individual with this skill will be always be in business of surface wiring of houses (home, offices, hospital etc.) and can equally employ other people.

Electrical Installation Works: Electrical installation is the process of fixing, arranging and getting ready of an electrical asset for use. Different system requires different types of installation. While certain installations in electrical are simple and straightforward and can be performed by non-professional, others are more complex and time consuming and may require the involvement of specialists. Installation can be categorized into two categories: physical and virtual installation. Physical installation pertains to installing of physical equipment such as electric motors, generators, oscilloscopes, computer hardware, etc. virtual installation refers to installation of software. Much physical equipment installation requires specific expertise. According to Odunsi (2000) installation is a group of activities done in order to address the important issues of system separation, mounting, provision and envelop size limitation to perform a certain useful function. He further stated that a good installation should be able to take advantage for vulnerability to faults such as engine failure, access for maintenance and space between two major component parts. Installation of electrical equipment shall be designed so that; the maintaining of normal operational and habitable conditions provided on board will be ensured without recourse to the emergency source of electrical power; the operation of the equipment required for safety will be ensured under various emergency conditions; and the safety of passengers, users or operators from electrical hazards will be ensured. Therefore, any electrical/electronics graduate who engage in this type of skill will always be effective in that, he or she can always provide his basic needs through his income and even employ more people to assist him in the work. To a great extent the level of unemployment will be drastically reduce.

Transformer Earthing and Installation: According to Stater (2009), transformer as the name implies, transfer electrical energy from one or more primary circuit to one or more secondary circuit by means of electromagnetic induction. It consists of one primary winding and one secondary winding of insulated wire on a common core; No electrical connection exist between any primary and any secondary circuit or between the input and the output. The voltage that appears across the secondary windings depends on the voltage at the primary windings and the ratio of turns in the primary and secondary windings. Hindson (2008) reported that, earthing of transformer involves connecting together all exposed metal parts to a common conductor which is designed to provide an easy path for the electric current to flow. The easier path allows a large current to flow which now causes the miniature circuit breaker (M. C. B) to separate and break the circuit. The fuse is designed to protect the appliance and not really designed to protect people. If there is a slight in balance between two currents, current in the live conductor and current in the neutral conductor; the MCB trips and "open circuit" the circuit. The slight in balance may represent current leakage through the body of a person who is touching a live wire, accidentally touching the live part of the circuit, (Hindson, 2008). This skill is very important and lucrative and when this skill is effectively utilized in the society, any individual engaged in it can always sustain himself in terms of getting money to take care of his basic needs.

Conduit Wiring: Conduit wiring is a system of wiring in which cables are laid inside a Polyvinyl Chloride (PVC) conduit pipe and connections are made to run through them. The PVC conduit pipe is the major material used for electrical conduit installation. It is specially made so that it can be bent to any angle without breakage to a corner by means of iron spring (Hindson, 2008). The major areas of services where this skill can be effectively needed are in the factory, industry or even in the hospital where electrical cables are not proper to be run on the surface of a wall. It is believed that any individual who possesses this skill can go a long way in being self-employed and electrical and

electronics technology education will also help in effective provision of the above mentioned skills.

Car Battery Charging: Battery charging is the simple process of putting energy into a secondary cell or rechargeable battery by forcing an electric current through it. However, battery charging, as previously stated, is one of the skills acquired in electrical installation trade by youths. Thus, when youth acquire this skill, they will become employed in sectors of the economy that deals with battery charging, in what may be also called battery charging companies. On the other hand, the youths will be self-reliant by having their own battery charging companies and equally employ others instead of looking for one social vices or the other to commit.

Electric Machine Coil Winding: In electrical engineering, electric machine is a general term for electric motor and electric generator. According to the author, they are electromechanical energy converters: an electric motor converts electricity to mechanical power while an electric generator converts mechanical power to electricity. On the other hand, windings can be classified in two groups: armature windings and field windings. The author further stated that, the armature winding is the main current-carrying winding in which the electromotive force (emf) or counter-emf of rotation is induced; and that the current in the armature winding is known as the armature current; while the field winding produces the magnetic field in the machine; and the current in the field winding is known as the field or exciting current. As previously stated, electrical machine winding is one of the skills acquired by youths in electrical technology education as a trade one can excel in. This connotes that youths will be equipped with the necessary skills to wind and rewind electrical machines or motors. To this effect, when youths acquire this skill, they will become employable and self-reliant economically. This of course, will happen, by youths being employed in sectors of the economy that deals with winding of electrical machines, in that may be also called electric machine winding companies. On the other hand, they will be self-reliant by having their own Electric machine winding shops and equally employing

other people in the job market, who may have thought of going into one social vice or the other.

III. CONCLUSION

Reduction of social vices and unemployment in any society has never been an easy task; the rate at which social vices and unemployment in Ebonyi State is rising despite its abundant minerals resources. The world is embracing knowledge and skill based economy. Therefore, the Nigerian government should equip its youths with employment skills and knowledge inherent in electrical electronics technology education with its effective utilization to meet the increasing demand for technology manpower thereby reducing social vices and unemployment. The ultimate aim of effective utilization of skill in electrical/electronics is gainful employment. Effective utilization of electrical/electronics skill is the actual manifestation of idea and knowledge in electrical/electronics through training which is geared towards instilling in individuals, the spirit of entrepreneurship needed for meaningful development. If individuals are given the opportunity to acquire relevant electrical/electronics skills needed for self-sustenance in the economy, it will promote their charisma in any work environment, reduce the rate of social vices and as well as unemployment in the society, thereby increasing competition and cooperation among people. Skills open doors to greatness, therefore Nigeria can be a great nation if proper attention is given to skill acquisition especially in electrical and electronics technology education.

Suggestions

In the light of the above, the following suggestions are made:

- There should be more practical work in Electrical/Electronics technology education to complement theory in our tertiary institution of learning, to provide skilled labour for the economy.
- Enough training equipment and facilities should be provided to electrical and electronic technology education and in electrical/electronics workshop to replace

obsolete training equipment in this era of digitalization, in order to meet modern standard.

- The wide gap between the classroom and the industry should be bridged by skill acquisition policy in every ramification. In fact, the ratio of theoretical to practical should be 30:70 because you learn what you see, but you remember what you touch.
- Uneducated youths should be equipped with such skills as repair skills, maintenance skills, technical skills know-how and procedures of operation skills in order to be self-reliant.
- Government should look into and improve program that will encourage skill acquisition for our youths especially in the field of electrical and electronics technology education. So as to curb the menace of social vices and unemployment.

REFERENCES

1. Anadi, C. C. (2019). Technicalizing education in nigeria: The state of the art. A paper presented at the annual conference and conventions of Nigeria Association for Educational Administration and Planning held in Kaduna May 1989.
2. Ezema, P. N. (2018). Clothing and textile education for self-reliance. Conference proceedings. National Association of Teacher of Technology Lagos (pp. 343 – 345).
3. Federal Republic of Nigeria (2013) National Policy on Education. Yaba-Lagos (NERDC) Press.
4. Hindson, E. (2008). Engineering Skills: Electrical and Electronics (Intermediate). New York. North lyneside Business Bank. info@elanders.shinds.co.uk.
5. Information Parlour (2016) social vices in school: causes, common effect and solution. Retrieved on 21st December, 2019 from <https://informationparlour.com/article-education>.
6. Karuna, A. O. (2011). Effects of Unemployment on our Society. Retrieved on 12th December, 2019 from <http://www.preservearticle.com>.
7. National Board for Technical Education. NBTE (2001). Electrical Engineering Technology, curriculum and course specifications. UNESCO-Nigerian Project
8. Odunsi, J. A. (2000). Electrical/Electroincs Maintenance and Repairs, Shomolu-Lagos: Ayenbros Enterprise.
9. Oduwole, T. A. (2015). Youths Unemployment and poverty in Nigeria. International Journal of sociology and Anthropology. Remark 1(2), 23,39.
10. Okorie, J. U. (2018): Development Nigeria's Workforce. Calabar: Macaky Environs Publishers.
11. Okorie, O. M. (2000). Skill improvement needs in Vocational and Technical Education: Nsukka University Trust.
12. Okoro, B. O. (2013). Electrical/Electronics in the 21st century. Issues and Practice. Ibadan: University Trust Publishers.
13. Olaitan, S. O. and Aguisiobo, A. O. (2001). Skills in Electrical/Electronics for self-reliance. Journal of Engineering and Environment, 2(3), 230-251.
14. Priere, M. (2011). The Engineering Programme University of Uottawa, Canada. Payeur@eccs.Upttaw.com.
15. Stater, O. (2009). Electronic Devices and circuit theory. New Delhi: EE Press Ltd.
16. The Nigerian Voice (2010). Social Implications of Unemployment. Retrieved on 20th December, 2019 from <http://www.theNigerianvoice.com>.
17. Umar, M. K. (2010). Skills improvement required by Electrical Technology for Effective Work Performance in Industries. Journal of Nigerian Association of Teachers of Technology (NATT), 7(1) 163-170.
18. United Nations Development Programme (UNDP) (2003) Alleviating poverty through microfinance: Village banking outcomes in Central America. Cited in Kor, Akaakohol and Mike (2013) Poverty in social perspective. The Social Science Journal, 2006 –2(234) Elsevier.