

# TVET AND LOCAL TECHNOLOGIES: A TOOL FOR CURBING GLOBAL CHALLENGES HINDERING SUSTAINABLE YOUTH EMPOWERMENT AND NATIONAL DEVELOPMENT

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## **Abstract**

*The study investigated Technical Vocational education and Training and local technologies as a tool for cubing the challenges hindering youth empowerment and national development. 120 technical teachers (male and female) were randomly drawn out of 576 technical teachers in 14 Technical Colleges in Benue State. Three research questions and three hypotheses guided the study. The research question which has four point rating scale were used for data analysis. The study adopted a survey research design and a total number of 30 items structured questionnaires were distributed and used to elicit information from respondents and all the copies were retrieved given a return rate of 100%. The data was face validated and tested for reliability which yielded reliability coefficient of 0.81, Mean and standard deviation were used to answer the research questions while T-test statistics was used to test the hypotheses at 0.05 level of significance. The findings of the study revealed among other, that the curriculum and teaching and learning tools, materials and equipment be reviewed and updated to reflect local technologies/ local contents that can upgrade human resources in other to facilitate effective teaching and learning of TVET for sustainable youth empowerment and national development.*

Education is the bedrock on which the technological advancement of any nation is built. This is a legacy which any country can give to her citizen. Education is considered by many as an agent of human development, social mobility and socio-economic development of a nation. The type and quality of education a nation offers to its citizen is a function of the level of progress of that nation. Igbuzor, (2006) in stressing the importance of education stated that Technical education is a human right to be accorded to all human beings solely by reason of being human. The schools at all levels are expected to educate the future leaders and develop high level technical capabilities needed for economic development. The world is facing the challenges of youth empowerment but in response to this, Technical Vocational Education and Training (TVET) is back on developmental agenda after many years of neglect. TVET is a specialized education designed to empower learners through development of their technical skills, human ability, cognitive, understanding, attitudes and work habit in order to prepare learners adequately for the world of work or position them practically for self employment after graduation (Oni, 2007). It is a medium of skills development and training to prepare peoples for works in the formal and informal sectors. Nwokolo, (2012) posited that the primary purpose of TVET is to develop sufficient citizen with the right skills to meet technological challenges and labour market demands.

Apart from poverty reduction potentials of TVET, it is also an antidote for youth employment, where the labour market is saturated. The aim of TVET is to prepare people for self employment and to be a medium of evolution of people to the world of work, by making individual to have sense of belonging in their community. Federal republic of Nigeria (FRN, 2013) defined TVET as a comprehensive term referring to those aspect of educational process involving, in addition to general education, the study of technology and related sciences, the acquisition of practical skills, attitudes, understanding of knowledge relating to occupation in various sectors of economic and social life. Down the memory lane, TVET was adopted as concept in formal education after 1969 curriculum conference of stake holders in Nigeria education. It became known as an indispensable aspect of the education that lead to the acquisition of skills as well as basic and fundamental scientific knowledge. This laid credence to the fact that education should be geared towards preparing the beneficiaries for the world of work and be self reliant. TVET is beyond manual dexterity. It is aimed at producing the manpower that will now apply the acquired knowledge towards improvement and find solution of ecological problems, by making the environment more secured, useful and comfortable for man, for the economic and technological growth of nation.

Ajibola and Jumoke (2012) later summed up the importance of TVET as tool for empowering people especially the youth for sustainable livelihood and socio-economic development of a nation. World Bank, (2005) defined empowerment as

process of enhancing the capacity of individuals or groups to make choices and transform those choices into desired actions and outcomes. Empowerment is a deliberate process of building or transforming an individual or person or groups of persons to be useful to himself, or themselves and society at large. TVET plays vital roles in improving the well-being of the youth and communities, it also increases the productivity, it empowers the youth to become self-reliant and also engender their entrepreneurial ability. As a result of global crisis and economic meltdown, Nigeria today faces some level of hardship, high rate of unemployment and poverty, especially among the youth. The youth who are the fulcrum of development in any nation of the world roam about the streets looking for job that is non-existent. According to Fanimo and Okere (2009) youth employment is being considered as one of the problems that could grow into global proportions in years to come causing social and economical problems for the societies. Nigeria has a fast increasing youth population and the rate of unemployment also is rising at geometric rate. The youth has been seen or acknowledged as a formidable social force for nation building and sustainable development. According to Abdulahi, (2003), youth are the most active segment of any society imbued with relentless energy, vigor and drive; the author further stated that youth are the major catalyst for development in any given society. Thus, youth empowerment is the way of assisting youth realizing the innate tendencies, discovering their creative and productive potentials for achieving development, gradual improvement in their standard of living as a way of eliminating unemployment and poverty. Youth empowerment focuses on improving the socio-economic welfare of Nigeria youth by encouraging and stimulating them to embrace technical vocational education and training as means of equipping themselves and society. It is pertinent to know that technical vocational education contributes to sustainable development.

Sustainable development according to Ayodele, (2007) is the ability of the economy to support the needs of the people of a country over a time, taking into consideration the economic, social and ecological constraints of the country. Sustainable development implies the fulfillment of the needs of the present generation which should not compromise the ability of future generation to meet their own need. Meanwhile, sustainable youth empowerment in this study is the productive capacity of TVET and local technologies to maintain, sustain and retain a steady generation of incomes to support the standard of living of the youth for long time.

Technology is the process of practically applying knowledge and using resources of matter, energy and natural phenomenon to solve human problems and making life easy and enjoyable (Manual, 2010). Technologies are required in promotion of nation's economy because they gear towards the socio-economic wellbeing of human society. In other words, technology has influenced human life, and activities towards development. According to Nwokolo (2015) the developing countries cannot but employ technological skills, technical training and technical

education in order to catch up with the current trends of the global economic and development. It is very essential that every society should desire for a solid orientation towards science and technical based education, for the vital roles that it plays in technological advancement. Quality science and technological education implies a state in which the study and the use of technology lead to achievement of an enhanced economy, a situation that is characterized by self reliance. Self reliance pertains to focusing on local technologies otherwise known as indigenous technology.

Ngoka (1992) saw local technologies as technologies employed by the native inhabitants of a country and which constitutes an important part of its cultural heritage and therefore be protected against exploitation by industrialized countries. Local technology is the systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments, and intimate understanding of the environment in a given culture (Rajasekaran, 1993). Local technology is actual knowledge of a given population that reflects experiences based on traditions and includes more recent experiences with modern technologies. Across Nigeria, there are number of Local technologies that if well tapped and sustained will empower the youths, these technologies include, local textiles industries, wood work, local gin brewing, craft work, blacksmithing, aluminum industries, leather industries, hospitalities industries, agriculture among others. Globalization and quest for foreign technology has endangered several local industries in Nigeria who survives through local technologies. Therefore it is necessary for these technologies to be studied and modified into modern technologies. It is very imperative to know that Nigeria as developing country is very far behind the world super power such as USA, China, Japan, Germany, UK, France, India and others. The nation China is known for resilient and indefatigable urge for technology which has brought her to where she is today in the world of technology because it looked inward and used its local resources to compete globally.

It is imperative to re-emphasize the importance of TVET to modern natural development, this involve creation of required infrastructure, recruitment of right kind of human resources, providing induction training and other professional skills development training programmes to the youth and the staff, developing a process management system, developing interactive relationship with employer, organization and setting up of monitoring evaluation and feedback mechanisms. For the success of sustainable youth empowerment in Nigeria and for achieving the self reliance and national development, there is need to focus on the development of local technologies as viable natural system of TVET programme that will have easy access and existing learning pathways. TVET must be validated by accredited learning that will lead to work or continue progress along other learning pathways. This help to ginger individuals to see learning of TVET with local technologies as challenging and worthwhile education, not just as a ticket to second-class status and citizens. Preserving the local technologies in emerging technology may enrich the global

community, contribute to promoting the cultural dimension of economy development, reduce poverty and also may help to protect global environment. Nigeria can re-orient itself towards sustainable youth empowerment using TVET in conjunction with local technologies as a vehicle for social economic and technology transformation. This study focused on TVET and local technologies for sustainable youth empowerment.

### **Statement of the Problem**

Nigeria seems not moving backward or forward technologically, this is more so when the nation continue to gluttonously consume other nation's technology waste as products, rather than develop its own technology. Till today, Nigeria wealth of resources remains largely untapped. Despite government policy to promote local technologies in transforming industrial development, Nigerian still have different perspective about the relevance of indigenous technologies in promoting youth employment and national development. Nigeria remains a developing nation despite the huge resources from crude oil. The level of technology of a nation is the major parameter for measuring its socio-economic and industrial development. Invariably, nations are expected to satisfy certain basic human needs of their people and contribute the technical adoption for such satisfaction to the world markets. Long before the advent of formal education of European missionaries, the indigenous Nigeria had successfully developed non- formal system of education learnt through participation by imitation, recitation, and demonstration. This is naturally adequate, carrying the subsistence economy from one generation to the other. For effective human and national transformation, teaching and learning must shift from one-time learning to lifelong-learning and from what teachers knows to what the learners (community or country) needs. Now the instructions must not be based on teaching for the job people will do but learning for self or paid employment.

Nwokolo (2014) observed that teachers of technology need manpower development and motivation in order to perform better. The author emphasized the need for training, seminar and conferences outside the country through exchange programmes where TVET are already functional at the government expenses, simply because there are urgent needs for science and technology to bring out Nigeria out from depressed and paralyzed economy.

Nwokolo (2013) stated that the availability of technology determines the boundaries of what is possible for a country to achieve in term of empowerment. The author emphasized that, in most of TVET based institutions in Nigeria, most of the equipment/ facilities are in a state of dilapidation and some of the machines are crying for help, which means that the problem of inadequate facilities need urgent attention. Inadequate and obsolete training equipment is the greatest disaster and treat to TVET in Nigeria. Nwokolo, (2015) emphasized that the dearth of instructional resources is plaguing the learning environment in schools at all level of education; this is because government allocates very little funds to public for procurement of instructional

materials. The authors also maintained that in some schools, some equipment in the workshop are too old that the spare parts cannot be sourced for replacement and many of them are sub-standards compare to current industrial and training standard. TVET taught without facilities and equipment means teaching in abstraction and TVET taught in abstraction has not been taught. TVET taught without standard facilities may result in loss of interest, boring, lack of technical skills and non-motivating at the end of the day. For a country Nigeria to break out of the shackles of unemployment, the industrial sector as profit oriented are saddled with the responsibility and way forward for local technologies advances that could increase employment in the country. The new curriculum of education should be gear towards self reliance, whereby student could sew their clothes, repair their damage chairs, repair their mobile phones and repair some electric home appliances (Ojimba, (2012). The colonial influence has forced our own local and indigenous technological development on a poorly mastered foreign technology.

It is pertinent to know that the simple capabilities emanating from our local process such as wood carving, gold smiting, cloth weaving, local gin brewing, agricultural science and other local technologies which could have systematically and scientifically exploited and transformed into new forms of vocational and technical education. Local technologies would have been given a pace to thrive, no matter how crude, after many years of trials, research and resilient effort; they would grow and metamorphosed into foreign technology. In this direction, TVET by now would have been recognized, formalized, encouraged, developed and institutionalized. This would have made local technologies to go viral as viable alternatives to the foreign ones. This process would have engineered towards the development of our local technologies so as to compete with foreign technologies.

It is a universal fact that a nation with zero technology ability cannot produce secondary product such as sophisticated machines, train, cars among others, which can actually involve youth and to some extent solve some unemployment problems and boost the economy. Nigeria as a developing and consuming nation as observed by Obiefuna (1998), should rise to challenges by imbibing the culture of producing finished goods not just the raw materials, the author also argued that if Nigerians need to wear clothes, there must be capabilities of producing some of the clothes, not just producing the raw cotton, then if there is need to drive cars, then Nigeria must not only mine iron ore/ steel, but must have the capability to transform this steels/ iron ore into finished goods like car, sophisticated machines, and some car parts that are only available on accidental cars.

As a developing nation, it is not good enough to assemble cars from accidental parts but to manufacture them as done in Japan, France, and Germany among other. For long -term economic consideration on industrial development for sustainability, students and youth must put on right frame of mind. The greater awareness of the importance of local technologies in the development process, the

more it is likely to help preserve valuable skills, technologies and problem solving strategies among the local communities. The technology policy that relied on technology transfer as well as local/indigenous technology development for achieving the nation's industrial goals must be a driving force for sustainability of our youth and the industries.

### **Purpose of the Study**

The main purpose of this study is to determine how TVET and local technologies could be used as a drive force for sustainable youth empowerment in Nigeria.

Specifically, the study sought to:

1. Identify the local technologies to be involved in teaching and learning of TVET.
2. Determine the levels of equipment, machines and material resources available for teaching and learning of TVET for sustainable youth empowerment.
3. Identify the ways of improving the teaching and learning of TVET with local Technologies for sustainable youth empowerment.

### **Research Questions**

The following research questions were raised to guide the study.

1. What are the local technologies to be involved in teaching and learning of TVET?
2. What are the level of facilities, equipment and materials available for teaching and learning of TVET for sustainable youth empowerment?
3. What are the ways of improving the teaching and learning of TVET with local technologies for sustainable youth empowerment?

### **Research Hypotheses**

The following hypotheses were formulated to guide the study

**H0<sub>1</sub>:** There is no significant difference in the mean responses of Federal and State technical teachers on local technologies to be involved in teaching and learning of TVET

**H0<sub>2</sub>:** There is no significant difference in the mean responses of male and female technical teachers on level of facilities, equipment and materials available for teaching and learning of TVET for sustainable youth empowerment?

**H0<sub>3</sub>:** There is no significant difference in the mean responses of federal and state technical teachers on ways of improving the teaching and learning of TVET.

**Methodology**

This study adopted a descriptive survey research design. Survey design was considered by Gall, Gall and Borg (2007) as the use of questionnaires or an interview to collect data from a group or sample that has been selected to represent a population to which the findings of the data analysis can be generalized. A survey design was therefore considered appropriate for this study because the study would ascertain opinions of technical teachers on the TVET and Local Technologies for sustainable youth empowerment and national development. Samples of 120 technical teachers from a population of 576 were selected for the study, using simple random sampling technique. The instrument for the study was a questionnaire on TVET and Local Technologies for Curbing Global Challenges for Sustainable Youth Empowerment and National Development (TVETLTQ), containing a total of 30 item statements which were administered to technical and vocational teachers using 4-point rating scale of strongly Agree, Agree, disagree, and strongly disagree. The instrument was face and content validated by 3 experts; two from Department of Vocational and Technical Education and one from measurement and evaluation, Benue State University Makurdi. The corrections and suggestions of the experts led to the modification of some items in the questionnaire which was used for the study. The internal consistency of the instrument was determined using Chronbach Alpha reliability coefficient. The Questionnaire was administered on 20 technical teachers from Government technical college Assaikio in Nasarawa State, who were not included in the sample for the study. This ensured that the subjects used for establishing the reliability of the instrument shared the same characteristics as those used for the actual study. The reliability co-efficient of 0.89 was obtained; this value suggests that the instruments were reliable. Data collected from the respondents were analyzed using mean ( $\bar{x}$ ) and standard deviation for research questions. The decision point was put at 2.50. This implies that the mean rating of less than 2.50 is “disagree” while a mean rating equal or more than 2.50 is “agree”. Then, t-test was used to test hypotheses at .05 level of significance.

**Results**

Research Question 1; what are the local technologies that will be involved in teaching and learning of TVET?

**Table 1: Mean Responses of Technical Teachers on the Local Technologies to be involved in Teaching and Learning of TVET in Technical Colleges for Sustainable Youth Empowerment (N=120)**

| S/N | Local technologies  | X           | SD          | Remark       |
|-----|---|-------------|-------------|--------------|
| 1   | Mining and exploration engineering craft  | 3.46        | 0.53        | Agree        |
| 2   | Foundry and Production craft practices  | 3.38        | 0.62        | Agree        |
| 3   | Cloth woven, garment making, dying of “traditional” clothes                     | 3.31        | 0.63        | Agree        |
| 4   | Farming, livestock, Poultry, fish farming/ processing and vegetable production  | 3.59        | 0.53        | Agree        |
| 5   | Fishing technology  | 3.55        | 0.64        | Agree        |
| 6   | Block industry  | 3.58        | 0.54        | Agree        |
| 7   | Leather fur and skin, leather goods manufacturing, shoe making and repairs.     | 3.45        | 0.54        | Agree        |
| 8   | Aluminum products making, such as aluminum roofing sheet, pot, and windows      | 3.37        | 0.63        | Agree        |
| 9   | Black smiting and fabrication of auto car /motorcycle spare part and farm tools | 3.30        | 0.64        | Agree        |
| 10  | Fruit drinks / Beverages making   | 3.54        | 0.65        | Agree        |
|     | <b>Grand mean</b>   | <b>3.45</b> | <b>0.60</b> | <b>Agree</b> |

With regard to the items in local technologies, from Table 1, the results clearly had shown that all the 10 items fall within the acceptance mean range of 3.30 and 3.59. This was interpreted to mean that the respondents agreed to 10 items in this section as the local technologies that can be involved in teaching and learning of TVET for sustainable youth empowerment. This was supported by the standard deviation which ranged between and 0.53 and 0.64 respectively and the grand mean of 3.45 which is greater than 2.50 cut off point.

Research Question 2; what are the level of facilities, equipment and materials available for teaching and learning of TVET for sustainable youth empowerment?

Results

**Table 2: Mean Responses of Male and Female Technical Teachers on the Level of Facilities, Equipment and Materials Available for Teaching and Learning of TVET in Technical Colleges for Sustainable Youth Empowerment (N=120)**

| S/NO | Facilities   | X           | SD   | Remarks      |
|------|--|-------------|------|--------------|
| 11.  | Adequate materials and modern equipments are not provided in technical colleges  | 3.34        | 0.63 | Agree        |
| 12.  | Projection screen are not adequately provided in technical colleges for teaching and learning of TVET                                | 3.59        | 0.53 | Agree        |
| 13.  | Numbers of common hand tools and power hand tools in good condition as in NBTE minimum standard are not adequate                     | 3.58        | 0.60 | Agree        |
| 14.  | Inadequate numbers of testing equipment/ instruments, meter and gauges   | 3.45        | 0.60 | Agree        |
| 15.  | Modern machines are not provided and numbers of the available machines are not in good condition                                     | 3.19        | 0.52 | Agree        |
| 16.  | Inadequate provision of computers and computers software required for teaching and learning  | 3.30        | 0.63 | Agree        |
| 17.  | The numbers of classroom desk/tables not in good condition   | 3.18        | 0.81 | Agree        |
| 18.  | Unavailability of machine accessories and spare part to maintain the equipment in good working condition as in NBTE minimum standard | 3.29        | 0.64 | Agree        |
| 19.  | Lack of standard physical facilities , such as libraries, audio-visual aids for effective teaching and learning of technical courses | 3.57        | 0.59 | Agree        |
| 20.  | Lack of constant power supply and plant/ stand-by generator to aid practical teaching and learning in the workshop                   | 3.20        | 0.51 | Agree        |
|      | <b>Grand mean</b>  | <b>3.37</b> |      | <b>Agree</b> |

The items in facilities, equipment and materials available for teaching and learning of TVET in Table 2, clearly showed that all the 10 items fall within the acceptance mean range of 3.86 and 4.00. This was interpreted to mean that most of all the technical teachers agreed to 10 items in this section as the facilities, equipment and materials available for teaching and learning of TVET in technical colleges. This was supported by the standard deviation which ranged between 0.47 and 0.58 with not much difference.

Research Question 3; what are the ways of improving teaching and learning of TVET with local technologies for sustainable youth empowerment?

**Table 3: Mean Responses of Technical Teachers on the Ways of Improving Teaching and Learning of TVET with Local Technologies for Sustainable Youth Empowerment in Technical Education (N=120)**

| S/N | Statement  | X           | SD   | Remark       |
|-----|--|-------------|------|--------------|
| 21. | Professional development of technical teachers engenders confidence, enhances good academic performance of students            | 3.93        | 0.56 | Agree        |
| 22. | Exchange visit between the industry and colleges will keep teachers abreast of latest technology and them make better informed | 3.94        | 0.58 | Agree        |
| 23. | Designing ICT rich learning material/ environment such as computer assisted design (CAD) in student design                     | 3.97        | 0.47 | Agree        |
| 24. | Training and retraining of technical teachers must be a priority   | 3.91        | 0.47 | Agree        |
| 25. | Provision of adequate resources for the efficient running of TVET programmes   | 3.86        | 0.52 | Agree        |
| 26. | Technical education need practically oriented indigenous textbook for teaching of the subjects                                 | 3.90        | 0.54 | Agree        |
| 27. | Provision of required modern machines and tools for acquisition of contemporary skills through local technologies              | 3.91        | 0.53 | Agree        |
| 28. | Teacher need seminars ,workshops, and conferences to learn new trends in TVET and local technologies                           | 3.98        | 0.56 | Agree        |
| 29. | TVET curriculum need to be revisited , not relevant to society   | 3.97        | 0.57 | Agree        |
| 30. | Adequate funding and provision of good working environment   | 4.00        | 0.57 | Agree        |
|     | <b>Grand Mean</b>  | <b>3.94</b> |      | <b>Agree</b> |

Data presented in Table 3 above revealed that technical teachers believed that all the items (21-30) are potential ways of improving teaching and learning of TVET with local technologies. The listed items with mean ratings between 3.86 and 4.00 are agreed, with the corresponding standard deviations of 0.52 to 0.57. This indicates that generally, teaching and learning of TVET with local technologies will improve and enhance youth empowerment. The grand mean of 3.49 implies that the above items will improve the teaching and learning of TVET for sustainable youth empowerment.

**Hypotheses:**

**H0<sub>1</sub>:** There is no significant difference in the mean responses of federal and state technical teachers on local technologies to be involved in teaching and learning of TVET

**Table 5: T- test Comparison of Mean Responses of Federal and State Technical Teachers on Local Technologies to be Involved in Teaching and Learning of TVET**

| Variable                   | N  | $\bar{X}$ | SD   | Level of Sig | T-cal | T-table | df  | Decision |
|----------------------------|----|-----------|------|--------------|-------|---------|-----|----------|
| Federal technical teachers | 75 | 3.41      | 0.36 | 0.05         | 0.65  | 1.960   | 118 | Upheld   |
| Private technical teachers | 45 | 3.47      | 0.33 |              |       |         |     |          |

Table 5 shows that t- ratio calculated is less than the t-critical at .05 level of significance, therefore the null hypothesis which states that there is no significant difference between the mean responses of technical teachers on local technologies to be involved in teaching and learning of TVET is retained. Since the computed values are less than the critical values, there is good reason to accept the null hypothesis. The null hypothesis was accepted at degree of freedom of 118 and at critical value of 1.96, which indicates that the above listed local technologies, if adopted should improve teaching and learning of TVET.

**H0<sub>2</sub>**: There is no significant difference in the mean responses of male and female technical teachers on level of facilities, equipment and materials available for teaching and learning of TVET for sustainable youth empowerment?

**Table 6: T- test Comparison of Mean Responses of Male and Female Technical Teachers on Level of Equipment, Machines and Materials Resources Available for Teaching and Learning TVET**

| Variable                  | N  | SD   | Level of Sig | T-cal | T-table | df    | Decision |        |
|---------------------------|----|------|--------------|-------|---------|-------|----------|--------|
| Male technical teachers   | 65 | 3.34 | 0.44         | 0.05  | 0.61    | 1.960 | 118      | Upheld |
| Female technical teachers | 55 | 3.38 | 0.42         |       |         |       |          |        |

To test the hypothesis 2, the data collected from the respondents were subjected to t-test analysis at 0.05 level of significance. The result was presented in table 6. The result in the table shows that there is no significant difference between the mean response of male and female technical teachers on level of equipment, machines and materials resources available for teaching and learning of TVET.

**H0<sub>3</sub>**: There is no significant difference in the mean responses of federal and state technical teachers on ways of improving teaching and learning of TVET?

**Table 7: T- test Comparison of Mean Responses of Federal and State Technical Teachers on Ways of Improving Teaching and Learning of TVET**

| Variable                   | N  | $\bar{X}$ | SD   | Level of Sig | T-cal | T-table | Decision |
|----------------------------|----|-----------|------|--------------|-------|---------|----------|
| Federal technical teachers | 75 | 3.96      | 0.54 | 0.05         | 0.55  | 1.960   | Upheld   |
| State Technical teachers   | 45 | 3.92      | 0.52 |              |       |         |          |

Table 7 shows that the t-ratio calculated is less than the t-critical at 0,05 level of significance therefore the null hypothesis which states that there is no significant difference between the mean responses of technical teachers in state and federal on ways of improving the teaching and learning of TVET is retained. Since the computed values are less than the critical values, there is good reason to accept the null hypothesis. The null hypothesis was accepted at the degree of freedom of 118 and at critical value of 1.96, which indicates that the facilities listed in the table 6 if adopted or provided would improve the teaching and learning of TVET.

### **Discussion of the Findings**

The research sought to determine local technologies that can enhance youth empowerment through TVET for sustainable development. A close observation of the analysis revealed that the following local technologies if well exploited can enhance teaching and learning of TVET for sustainable youth empowerment in Nigeria. The local technologies include: mining and exploration of engineering craft, foundry and production craft practices, farming, (livestock, poultry, fish farming)/ food technology/ processing; vegetable production; cloth woven, garment making and dying of “traditional” clothes, fishing technology, among others. This study corroborates Butler (2012) in their earlier study in which they emphasized on facilities for stimulation on the importance of local technologies that if well tapped and sustained will empower the youth. The author stated local technologies to include: local gin brewing, craft work, blacksmithing, aluminum industries, leather Industries and agriculture.

Findings of the study revealed that some workshops lack constant electricity or stand-by generator to operate the available equipment. Modern machines, machine accessories and spare part; inadequate of computer and computer software, Projector and standard physical facilities such libraries, audio visual aid for effective teaching and learning of technical courses; unavailability of instructional materials and textbooks on local technologies call for the use of varied improvised local instructional materials to facilitate teaching and learning. This finding is in line with Nwokolo & Aho, (2017) who stated that, in Nigeria the dearth of instructional resources is plaguing the learning environment in schools at all level of education, this is because government allocates very little funds to public to procure instructional materials. The findings is also in agreement with Ahmed (2003) who revealed that, in most of the schools in the country, teaching and learning takes place under un-conducive environment, lacking the basic materials, and thus hindering the fulfillment

of educational objectives. The findings also agreed with Nwokolo (2015) who stressed that adequate provision and proper use of educational facilities in teaching technical education will determine whether youth will have access to technical education (Nwokolo, 2015). The author also stated essentially that, availability of adequate buildings, classrooms, laboratories, workshops, and other facilities is necessary for the accomplishment of any education goals and objectives. Respondents agreed that materials such as textbooks, magazines, journals, filmstrips, radio, television, projectors, computers and other modern electronic devices will go a long way in assisting teaching learning process and invariably enhancing male and female achievement in technical education. The inadequacy of basic tools and equipment may, however, make it difficult for the students, especially females to engage in production exercise.

The findings of the study revealed that integration of so many subjects' areas in the TVET curriculum makes it too complex and ambiguous, which are not relevant to society; According to Bentley (2013), curriculum is designed to bring a change in the life of an individual to make such person become useful to himself and the entire society. This implies that the desired change is made to bring about a change. The result of the study also revealed unavailability of fund for proper management of TVET and for the training of technical teachers, instructors and technologists. Olorunmolu and Agbede (2012) asserted that funds are critical to the success of any system of education as a provision of facilities and equipment are dependent upon availability of funds.

The findings further showed that professional development of technical teachers should be maintained to enhance good academic performance of students, especially in the area of local technologies, this is in conformity with Nwosu (2005) who stated that self-reliance pertains to focusing on local technologies. In the same vein, Rajasekaran(1993) stressed that local technologies if well exploited serves as master keys for alleviation of poverty, promotion of peace, conservation of the environment in order to improve the quality of human life and sustainable development. Finally, the result revealed among others that exchange visit between industries and colleges will keep teachers abreast of latest technologies, provision of ICT rich learning materials/ environment such as computer assisted design, organization of workshops, seminars and conferences to learn new trends in TVET and local technologies and provision of infrastructural facilities and good working environment will improve will improve their teaching skills. Arlington (2001) added that a high-quality technical teacher requires meaningful and ongoing professional development. Ukadike (2014) stated that present global technological age, a good teacher should be able to effectively utilize ICT as a tool for teaching and learning, through organization of seminars, workshops and conferences to sanitize technical teachers on local technologies. The test of the hypothesis shows no significant difference in the mean responses of federal and state technical teachers on educational

facilities needed to enhance youth empowerment through the use of TVET and local technologies. The findings indicates that respondents rated the educational facilities that can enhance youth empowerment through TVET and local Technologies agreed, and that both groups of respondents (federal and state technical college teachers) were unanimous on the educational facilities to enhance youth empowerment through TVET and local technologies.

### **Conclusion**

Based on the result of this study, it was concluded that TVET is an essential tool for the development of individuals with local technologies for sustainable youth empowerment in Nigeria. The study also identified some limitations in the effectiveness of local technologies training, and the desirable strategies for improving the effectiveness of local technologies training have been elicited. With focus on TVET and local technologies in enhancing youth for self reliance, various local technology companies can be created and the youth can be empowered in jobs for fostering national development. Therefore, government should look into some deficiencies in the area of facilities, tools, equipment, funding and remedy it in other to make local technologies more effective. TVET with Local technologies has emerged as one of the most effective human resource development strategies that Nigeria youths need to acquire proper trained and modernized technological workforce for job creation, rapid industrialization and National development.

### **Recommendations**

Based on the findings of the study, the following recommendations were made:

1. Government should create conducive environment for local technologists by promoting local made goods in a way that it will be economical for people to patronize.
2. Government in collaboration with technical education institutions should make provision for adequate number of hand power tools, equipment/machines and materials, (consumables and non-consumables) in good condition.
3. The federal government should foster unity and promote exchange programmes between industries and TVET institution for effective TVET outcomes that meets industry's needs and needs of individuals for self employment and improved productivity. Exchange visit often bridge the gap between theory and practice and acquaint the trainers and trainees of TVET institutions with present needs and expectation in the industry.
4. Convening a national TVET conference with the purpose of reviewing the existing curricular to fit into the advance world of ICT and incorporate the major goal of TVET and local technologies as envisage in national policy on education, to stimulate employability, towards national development, and conducting public

education campaigns and activities to educate and inform communities about significant of TVET and local technologies for sustainable youth empowerment.

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