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**Julian Ng**
**Davison Mupinga**
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# Contributors

**Dr. Wilfred Karukuza Nahamya** is the director examinations management, Uganda Business and Technical Examinations Board, a Ugandan government agency responsible for assessment of Technical, Vocational Education and Training (TVET). He can be reached via email at wnahamya@yahoo.com.

**Lilian Nakawala** is a research officer, Uganda Business and Technical Examinations Board. She can be reached via email at kyagabalillian632@gmail.com

**Patrick E. Egbule** is a professor of agricultural and workforce education at Delta State University, Abraka, Nigeria. He is the author and editor of several books, and former president of Nigeria Vocational Association. He can be reached via email at: egbulepat@gmail.com

**Oghenebrorien Dimoni** holds M.Ed in agricultural education from Delta State University, Abraka. Currently, he teaches agricultural science at Ophorigbala mixed secondary school, Ughelli, Delta State, Nigeria.

**Dr. Francisca N. Nnajiofor** is an associate professor of mechanical technology education in the Department of Technology and Vocational Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria. She can be reached via email at: fn.nnajiofor@unizik.edu.ng

**Dr. Michael U. Cyril** is a professor of mechanical (production) technology education in the Department of Technology Education, School of Technology and Science Education, Modibbo Adama University of Technology, Yola, Adamawa State, Nigeria. He can be reached via email at: ubalecyril@yahoo.com

**Dr. Kerter E. Gowon** is a faculty in the Department of Technology Education, School of Technology and Science Education, Modibbo Adama University of Technology, Adamawa State, Nigeria. His research interests are in material science, technology education, construction project management, built environment and E-learning. Author of book, Educational Facility Planning and Maintenance. He can be reached via email at: ericgowon@gmail.com

**Legborsi Nwineh** is a lecturer in vocational and technical education at Rivers State University, Nigeria. His research interests are in the application of ICTs in TVET. He can be reached via email at: nwineh.legborsi@ust.edu.ng

**Muhammed A. Yusuf** is an assistant lecturer in electrical technology education in the Department of Electrical Technology Education at Modibbo Adama University of Technology, Nigeria. He can be reached via email at: mayusuf@mautech.edu.ng

**Isaac J. Ibanga** is an education officer (Electrical Technology Education) at Akwa Ibom State Ministry of Education, Nigeria. He can be reached via email at: isaacjohn80@gmail.com

**Dauda Moses** is an associate professor in industrial technology education (Electrical/Electronics) in the Department of Electrical Technology Education, at Modibbo Adama University of Technology, Nigeria. He can be reached via email at: mulkidon1@mautech.edu.ng

**Aniekan E. Asukwo** is an assistant lecturer in electronics technology education in the Department of Electrical Technology Education at Modibbo Adama University of Technology, Nigeria. He can be reached at: aaelija@mautech.edu.ng

Osianemo A. Omole is a builder and a graduate of Building Department, Ahmadu Bello University, Zaria, Nigeria. He specializes in building services. omoleosianemo@gmail.com

**Dr. Alfred S. Omole** is a teacher educator at the Federal College of Education, (Technical), Gusau, Nigeria. The author specializes in woodwork technology education.  omolealfred@yahoomail.com

**Aniekan E. Asukwo** is an assistant lecturer in electronics technology education at Modibbo Adama University of Technology, Nigeria. He can be reached via email at: aaelija@mautech.edu.ng

**Dauda Moses** associate professor industrial technology education (electrical/electronics) at Modibbo Adama University of Technology, Nigeria. He can be reached via email at: mulkidon1@mautech.edu.ng

**Muhammed A. Yusuf** is an assistant lecturer in electrical technology education at Modibbo Adama University of Technology, Nigeria. He can be reached via email at: adamuyusuf@iut-dhaka.edu

**Isaac J. Ibanga** is an education officer, specializing in electrical technology education at Akwa Ibom State Ministry of Education, Nigeria. He can be reached via email at: isaacjohn80@gmail.com

**Dr. Abubakar Mohammed Idris** is an associate professor of automobile technology education at the Federal University of Technology, in Nigeria. His research interest is in curriculum and development of instructional manuals. He can be reached via email at: idrismohammed@futminna.edu.ng

**Dr. Rufai Audu** is a senior lecturer of industrial and technology education at the Federal University of Technology in Nigeria. His research interest is in improving instructional delivery in industrial and technology education with emphasis on Automobile Technology Education. He can be reached at: rufai.audu@futminna.edu.ng

**Dr. Abdulkadir Mohammed** is a senior lecturer of industrial and technology education at the Federal University of Technology, in Nigeria. His research interest is in Entrepreneurship development in Automobile Technology Education. He can be reached at: abd.mohd@futminna.edu.ng

**Abutu Francis** (M. Tech) is a doctoral student at Federal University of Technology, Nigeria. His research interest is in appropriate instructional methods for TVET programs. He can be reached via email at: francis.a@futminna.edu.ng

**Dr. Oluwafolakemi A. Olaniyan** is a lecturer in agricultural science education and extension at Adekunle Ajasin University, Nigeria. Her research interests are in community development, community participation and youth empowerment through sustainable agricultural production. She can be reached via email at: feludayo@gmail.com

**Dr. Comfort A. Akinfolarin** is a reader in educational management and administration in the Department of Educational Management at Adekunle Ajasin University, Nigeria. Her research interest is in resources utilization in vocational and technical education. She can be reached via email at: ajoro123@yahoo.com

**Taiwo G. Olulowo** is an assistant lecturer in accounting education at Adekunle Ajasin University, Nigeria. Her research interests are in curricular and pedagogical issues in accounting education and youth education/empowerment in business activities. She can be reached via email at: oluwanifemi4krist@gmail.com

# Message From the Editor

Welcome to the International Journal of Vocation Education and Training (IJVET) volume 25(2), the official refereed journal of the International Vocational Education and Training Association (IVETA). This publication provides a means for researchers and technical and vocational education practitioners to share ideas on issues facing the profession. Since the readership for this publication is international, articles published cover TVET issues across the globe.

Technical vocational education and training (TVET) continues to face challenges related to policies and implementation of programs, funding, access and equity, meeting the needs of global workplaces, and lately, provision of education and training programs during a pandemic. Many of the papers in this issue were selected from presentations at the IVETA international conference held in 2019 in Abuja, Nigeria. The theme for the conference was Achieving Sustainable Development Goals 2016–2030 Through Global Partnership in TVET.  Papers in this issue focus on the role of information and communication technologies in the delivery of TVET, students' interests in non-traditional TVET areas, integration of security awareness in TVET curriculum, students and teachers' perceptions toward tertiary technical institutions, competencies and needs of TVET operators, achieving sustainable development, hindrances to skill acquisition in TVET programs and inclusive training for sustainable entrepreneurship.

As we all know, this year, TVET has also faced the harsh realities of the COVID-19 pandemic. One notable challenge has been offering TVET from a distance, especially when most instruction in our fields has traditionally been face-to face. While this situation has not been easy for most TVET practitioners, it has nevertheless, forced us to re-think our delivery approaches and to some extent, reinvent our purpose. And so, we would like to devote our next issue to opportunities, benefits and challenges of implementing TVET during a pandemic. Practitioners around the world can do with some ideas on implementing TVET during such unprecedented times. We are therefore, requesting for papers related to TVET and the pandemic.

As always, readers are reminded that articles published in this journal come from all over the world, and as such, some authors do not speak English as their first language. While great care has been taken to correct the verbiage, there may be some errors that went unnoticed and we apologize for that. Finally, I wish to thank all the reviewers, authors, and members of the editorial staff who worked tirelessly to produce this and previous IJVET journals. We constantly need individuals to serve as reviewers, and therefore, if you are interested, please details at: http://www.iveta.org/. Please note that the articles in this journal do not reflect the position of the journal's editorial staff, reviewers, or policy of IVETA.

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Davison M. Mupinga

IJVET, Guest Editor

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# Information communication technology in vocational training institutions: A panacea for access to TVET in Uganda

**Wilfred Karukuza Nahamya and Lilian Nakawala**

Uganda Business and Technical Examinations Board, Uganda

## Abstract

The need for Vocational Education and Training (VET) for multi-skilled labor force is a key ingredient in the development of any country. Processes involved in assessment by Vocational Training Institutions (VTIs) however, continues to show disappointing pictures for instance common delays in releasing the continuous assessment results causing feedback challenges. This raises more questions than answers that need to be investigated. Could it be that the introduction of ICT could play a vital role in improving the accessibility to VTIs? A descriptive research design involving qualitative and quantitative methodologies was used in selected VTIs in Uganda to arrive at the findings. Information on Instructor assessment practices as well as application of computers as a key tool in the use of digital literacy was obtained using observations, interviews and questionnaires. Challenges in the usage of ICT were also noted to arrive at the solutions. This paper argues for a paradigm shift to adopt the use of ICT to meet the growing demand for better skills. It is recommended that, TVET bodies should provide Technical support and training opportunities for Heads of Institutions and Instructors and in-service trainings amongst others.

*Key Words:* ICT in assessment, Challenges in use of ICT, Vocational Institutions, Access to TVET.

## Introduction

Education has been identified as a vital tool for achieving socio-economic and political development. It is a factor that determines the welfare and security level of people in a given society (Scott & Gough, 2004). The needs, aspirations, cultural and environmental aspects of any society greatly determine the kind of knowledge and skills to be acquired (Adebosin, 2004). As a result, the kind of education operated should bring about skill development and behavioral change that would enable individuals to live and positively contribute to the overall development of society. Most governments today regard education (Technical Vocational Education inclusive) as an instrument for facilitating national growth and development hence the quality of Technical Vocational Education and training (TVET) to be provided should be holistic and wholesome in order to foster balanced national development.

Technical Vocational Education and Training in this paper comprises Education, training and skills development that relates to a wide range of occupational fields, production, services and livelihoods. TVET, as part of lifelong learning, can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and professional development which may lead to qualifications (Green, 2004). TVET also includes a wide range of skills development attuned to national and local contexts. TVET refers to a range of learning experiences relevant to the world of work and which may occur in various learning contexts including educational institutions and the workplace. It can therefore be argued that TVET includes learners meant to obtain skills for occupations and learning is designed to prepare for entry into the world of work.

Information and Communication Technologies (ICTs) have been defined differently by different scholars. Yusuf (2007) described ICT as an electronic technology used for accessing, processing, gathering, manipulating, presenting and communicating information. He emphasized that when ICTs are employed in Education, they can accelerate, enrich and deepen level of understanding of students hence improved performances. Likewise, Adebayo (2013) defines ICT as technology that supports activities involving the creation, storage, manipulation and communication of information. The application and use of ICT has led to the emergence of different forms of microelectronic and telecommunications tools such as laptops and computers, computer networks, the Internet digital printers and mobile technology, which enable administrators to record, store, process, retrieve, and transmit information (Kokt & Koelane, 2013). Therefore, ICT can be generally taken to mean the use of computer and telecommunication facilities to store and retrieve information from various sources, generate and transfer ideas, and impart knowledge to recipients. In view of the arguments, it can be concluded that in order to prepare students for this kind of technology Education, complete internet and intranet services should be made available in Technical Vocational Education institutions.

The development and utilization of ICTs in TVET have been one of the major areas emphasized by (UNESCO, 2008), due to the fact that ICT tools are becoming inexpensive, reachable and interactive, in which their application into all levels of Education is expected to be imperative in making Educational results labor-market oriented, and in the transformation of contents, methodology, as well as promoting information literacy. Information literacy is predicted as a basic to human survival (ADB, 2009), in an increasingly digitalized world as it authorizes individuals in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and Educational goals (UNESCO, 2008).

Uganda developed its initial National ICT Policy in 2003 (Tanestik, 2007). The policy framework document recognized that Uganda would need to embrace the goal of lifelong Education for all. One of the recommendations that were executed early in 2006 resulted into the establishment of a Ministry of ICT to address the convergence of ICT and to provide coordination of policy development. The policy framework of Ministry of Education and Sports indicates that there are a number of challenges concerning access to and use of ICT in Uganda, including high level of poverty, limited rural electrification and power disruption. Whereas most TVET institutions have some computer equipment, they do not have all necessary ICT tools for teachers and students. This study thus investigated how ICT is a panacea for access to TVET in the technical and Vocational Institutions in Uganda.

## Problem Statement

Information Communication Technology has the capacity to enable TVET students and staff to ease tasks that they would normally find time-consuming and difficult. ICT is a teaching tool that improves the quality of TVET student's and support teachers' work inside and beyond the classroom. Hollander & Mar (2009) contend that the application of ICT in TVET institutions will aid effective teaching and learning and help the students acquire necessary Vocational skills that will enable them to contribute to the growth and overall national development. However, despite its numerous benefits, ICT in TVET is faced with many challenges. In addition, ICTs seems not to have been used as a way of acquiring the knowledge and skills in TVET institutions hence limiting access to TVET. It against this background that this paper critically examines ICT as a panacea to access and improve assessment process of Vocational Institutions in Uganda.

## Objectives of the Study

The main objective of the study is to examine the role of ICT in the assessment process of Vocational Institutions in Uganda. Specifically, the study sought to:
  i.   assess the availability of ICT facilities for continuous assessment in TVET to increase access.
 ii.   examine the extent to which ICT are used by teachers and students in TVET; and
iii.   identify the major challenges encountered by institutions toward successful integration of ICT in continuous assessment.

## Significance of the Study

  i.   Information Communication Technology has the potential to play a powerful role in enhancing teaching and learning in Vocational institutions and preparing students to acquire skills, knowledge and competencies to enable them to compete in the emerging global 'knowledge' economy.
 ii.   The findings will assist the Ministry of Education and Sports in formulation of policies and strategies that can be used to enhance the academic standards in institutions. The study will make possible recommendation towards increasing the use of ICTs in enhancing teaching and learning processes.
iii.   The study provides information to curriculum developers in Uganda such as National Curriculum Development Centre (NCDC) on the benefits of inclusion of ICT as an instructional mode.
 iv.   The study plays a crucial role in determining which ICT-based approach of instruction can lead to better achievements in the VTIs assessment processes.

## Literature Review

Development in ICT has brought new teaching and learning opportunities to teachers and students. ICT has been found to encourage active learning, support innovative teaching, reduce the isolation of teachers, and encourage teachers and students to become active researchers and learners (Yusuf, 2007). In addition, ICT supports holistic learning, collaborative grouping, problem-oriented activities and integrated thematic units. Hence, teachers wishing to teach in this way will be both more efficient and effective if they employ ICT to reach their goals (Dellit, 2002). According to Cavas et al, (2009) there are five important reasons for teachers to use ICT in Education: motivation, distinctive instructional abilities, higher productivity of teachers, essential skills for the information age, and support for new teaching techniques. ICT has the capacity to affect the efficiency and productivity of technology teacher Education program. Moreover, UNESCO (2002) argues that teacher Education institutions need to develop strategies and plans that enhance the teaching-learning process within teacher education programs and assure that all future teachers are well prepared to use the new technology tools for learning.

Thus, ICT as argued by Condie and Munro (2007), can motivate and engage students in learning more effectively, sustain impact depending on the ability of the teacher to integrate ICT into the learning experience of students in such a way that the potential of the technology is fully realized.

Effective utilization of ICTs in TVET cannot be fully realized without some drawbacks, either material, or human. Various studies on the extent to which ICTs are applied to TVET reveals some challenges encountered by stakeholders toward successful utilization of ICTs, for instance, lack of time in the preparation of teaching materials and lack of knowledge and skills for the presentation of advanced ICT teaching materials. As argued by Sadik (2006) cost and access, inadequate Technical and administrative staff, lack of funds for training and unstable electricity supply were the common problems facing effective utilization of ICT facilities in TVET.

Despite its numerous contributions, available and functional infrastructures, sophistication in technology and continuous provision and upgrade by institutions, ICTs full utilization in teaching and learning process is still in progress (Hayes, 2007). He further states that teachers' slowness to adopt ICT reflects their effort to discern how best to incorporate new technologies into old teaching practices. Study in south East Asian countries reveals that, the progress toward full integration of ICTs in Education, especially TVET, require additional commitment from teachers (Pelgrum, 2001). As such, the critical challenge lies in the possibility of ICT to substitute physically trained specialist/instructors and training facilities. In view of the fact, ICT can replace a portion of hands-on experience where manual skills are necessary requirements in teaching and learning process (Teo, 2008). Though ICT is crucial component that no training program can afford to neglect, face-to-face interaction among learners and between a learner and a teacher equally holds great promise for access.

In addition, most other pressing challenges to the effective utilization of ICT in TVET institutions have been noted (Kotsik at al., 2009). Such challenges include content and curriculum; appropriateness and efficacy; quality and branding of ICT-mediated learning; stakeholders' resistance; lack of appropriate software; the digital divide; the cognitive and copy right issues. Similarly, Albirini (2006) found lack of teacher competencies, and lack of access to computers by teachers in institutions as a main obstacle

to their acceptance or rejection, but the finding is not connected to negative attitude toward computers. This is also true in the study on instructional technologies in social science instruction in South Africa where teachers reported some factors that constraint their use of ICTs, the major ones being; inadequate technology, pedagogical issues like plagiarism, lack of time to develop or adapt ICT materials (Louw at al., 2009). In the case of Uganda, there is limited data on the above. It is against this background that this study investigated how ICT in Vocational Institutions in a panacea to access in TVET in Uganda.

## Methodology

The study employed descriptive survey research design. One hundred and five (105) lecturers and administrators in TVET institutions in Uganda participated in the study. Data collection instruments consisted of structured questionnaire and open interviews developed for the study. The instrument had three sections: 'A', 'B' and 'C'. Section "A" sought information on the socio-demographic characteristic of the participants. Section 'B' contains items about various ICT resources available in TVET institutions and Section 'C' contain items on challenges faced in using ICT resources in TVET institutions. The items were structured on a Likert-scale; the questionnaire was subjected to face and content validation by research experts in the institution. Reliability of the items was determined using Cronbach alpha. The results of Cronbach Alpha reliability test indicated alpha coefficient of .85 for various ICT resources and .75 for challenges of using ICT in TVET institutions. The questionnaires were supplemented with the open-ended interviews and were administered to respondents through research assistants and personal contact. The response rate for the questionnaire was 85%. Additional information was obtained through interviewing the deans, heads of department and the computer operators to supplement the questionnaire. Data generated from the questionnaire were analyzed using mean, standard deviation, t-test statistics and Analysis of Variance (ANOVA) at .05% level of significance, using SPSS 17.0 version.

## Results and Discussion

### Availability of ICT facilities for continuous assessment in TVET Institutions

The study examined the availability of ICT facilities in TVET institutions to enable integration of ICT in continuous assessment. The results presented in Table 1 revealed the average scores of Lecturers and Administrators in TVET institutions in relation to ICT facilities availability for improving learner's skills and competence. Findings revealed that ICT facilities are inadequate as most respondents scored below 3.55. The highest average scores of 3.90, 3,67 and 3.67 were obtained in areas of access facilities to send email electronically, availability of computers (software and hardware) and availability of electric generators to power computers in case of power failure respectively. This implies that availability of ICT facilities is inadequate to ease incorporation of ICT in continuous assessment.

In addition, findings from the overall mean score of (22.48) revealed that majority of the Lecturers and Administrators' responses indicated that ICT facilities in TVET institutions are not often available

in TVET institutions in Uganda. The implication also poses a great challenge to stakeholders in TVET program in that they should be made to support TVET institutions with ICT facilities through provision of physical facilities and structural resources such as computer rooms, furniture, and generators or other forms of energy.

Table 1: Mean score of responses on ICT Facilities Available in TVET Institutions=84

| S/N | ICT Facilities Availability in TVET Institutions | Mean X | SD |
|---|---|---|---|
| 1. | Computers (software and hardware) are available for use in TVET | 3.67 | .729 |
| 2. | I enjoy Internet facilities in the institutions | 2.52 | 1.17 |
| 3. | There are large numbers of laptop and desktop for administrative and teaching use. | 2.70 | 1.19 |
| 4. | I enjoy working with multimedia any time in TVET institutions | 2.22 | .99 |
| 5. | Printers, photocopiers and toner are readily available for use by instructors | 2.30 | .94 |
| 6. | Students and staff have access of sending mail through electronic | 3.90 | .40 |
| 7. | There are telephone facilities in the institutions for easy communication | 2.39 | .99 |
| 8. | Everyone at the institute has access to Wi-Fi | 2.36 | .94 |
| 9. | The Institution networking system is effective for communication. | 2.44 | 1.10 |
| 10. | The computer rooms are well furnished with computers for use | 3.76 | .65 |
| 11. | I appreciate working with iPad than laptop | 1.90 | .79 |
| 12. | Electric generators are available to power computers when there is power failure. | 3.67 | .729 |
| *Overall mean on available ICT facilities in TVET institutions* | | 22.48 | 6.77 |

## Application (Use) of ICT facilities in TVET Institutions

The results of the study indicated that ICT use was most pronounced for preparation of student results with a mean of 3.90) keeping and accessing student records (M=3.63); student on-line registration (M3.56); preparation of examination questions and materials (M=3.40); out of a scale of 1-5. Lecturers and Administrators used ICTs for these tasks.

ICT was very rarely used in the preparation of on-line lectures in modules; uploading of course materials for student access; training of classes through online tutorials and presentation of seminars and research reports through videoconferencing with means score below 3.50 cut-off points ranging from 2.43 to 2.98. This implies that there is need to develop the Lecturers' personal, social, occupational and Educational capacity in the use of ICTs in the training, up grading and re-training. It is of paramount significance and an essential aspect of teaching's cultural toolkit in the twenty first century, affording new and transformative models of development.

The findings of the study were in conformity with the results of Louw et al. (2009) who found out that ICT use is very limited for Lecturers' instructions purposes. This is in line with another study (Hennessy at al., 2010) which noted that ICT use was mainly for the facilitation of clerical activities and to a

limited extent, other administrative duties, particularly processing of examinations, the power of ICT in timetabling, student records and other record keeping, financial management and decision making. Therefore, ICT use/application in TVET institutions is very limited especially in the areas of teaching and assessment processes.

Table 2: Mean Scores for Application of ICT facilities in TVET institutions N=84

| S/N | Application of ICT facilities in TVET | Mean | SD |
|-----|----------------------------------------|------|-----|
| 1. | Keeping and accessing student records | 3.63 | .93 |
| 2. | Student on-line registration | 3.56 | .79 |
| 3. | Preparation of on-line Lectures in modules | 3.57 | 1.18 |
| 4. | Preparation of examination questions and materials | 3.40 | 1.07 |
| 5. | Budgeting and processing of finance records | 2.53 | 1.10 |
| 6. | Preparation of student results | 3.90 | .40 |
| 7. | Keeping of inventory records | 2.43 | 1.10 |
| 8. | Presentation of seminars and theses through videoconferencing | 2.39 | .99 |
| 9. | Uploading of course materials for student access | 2.98 | .65 |
| 10. | Training classes through online tutorials | 2.46 | .94 |
| *Overall mean on available ICT facilities in TVET institutions* | | 29.27 | 3.20 |

## Challenges faced in using ICT in continuous assessment in TVET

The study investigated the challenges faced in using ICT in continuous assessment in TVET. In order to determine the above relationships, an independent sample t-test was conducted to compare the mean scores of male and female lecturers and administrators on the challenges of utilizing ICT resources in TVET. The study findings revealed that the male Lecturers and Administrators had relatively higher mean scores than the female Lecturers and Administrators on the challenges faced in using ICT resources in developing required skill and competence in TVET institutions. However, there were no statistically significant differences between the males and females mean scores on challenges faced in using ICT resources in TVET institutions (t-test score=.129, p>.05). A t-test score of 0.129 was obtained at p- value of 0.05. The independent sample t-test scores are presented in Table 3.

Table 3: t-test Results of Gender Difference on Challenges Faced in Utilizing ICT in TVET institutions N=84

|  | Gender | N | SD | t-test score | P | X |
|--|--------|---|-----|--------------|---|---|
| Challenges | Male | 60 | 50.33 | 7.14 | .129 | .05 |
|  | Female | 45 | 50.15 | 7.05 | | |

The smaller the magnitude of t, the greater the evidence that null hypothesis is accepted, therefore there is no significant difference between the male and female Lecturers' and administrators' observations about challenges in using ICT in TVET institutions. This implies that gender does not influence challenges faced in using ICT resources in TVET institutions in Uganda. This finding is consistent with

other studies which found no significant differences in challenges in utilization ICT by gender (Bakr, 2011; Cavas et al, 2009; Teo, 2008). However, this finding is different from the finding of Tezci (2010), who found that, there were significant differences between male and female teachers in terms of frequency of ICT use and Internet attitude in favor of males.

## Categories of Respondents Difference on Challenges Faced in Utilizing ICT in TVET Institutions

Respondents were categorized into Lecturers and Administrators, and an independent sample t-test was conducted to compare the mean scores to analyze the mean scores of the two groups and their ICT challenges. The Lecturers had relatively higher mean scores than the Administrators on the challenges faced in using ICT resources in developing required skill and competence in TVET students. However, there were no statistically significant differences between the Lecturers and Administrators mean scores (t = -.833, p>.05) on challenges faced in using ICT resources in TVET institutions due to the closeness of the T value to 0. Thus, the results show that categories of respondents do not influence challenges faced in using ICT resources in TVET institutions. Table 4 below shows the details.

Table 4: T-test Results of Categories of Respondents Difference on Challenges Faced in Utilizing ICT in TVET Institutions N=84

|  | Category of Respondents | N | X | SD | t | p |
|---|---|---|---|---|---|---|
| Challenges | Lecturers | 75 | 49.88 | 7.20 | -.833 | .408 |
|  | Administrators | 30 | 51.13 | 6.79 |  |  |

## Challenges faced in utilizing ICT in TVET institutions based on Experience

In order to investigate the challenges faced in utilizing ICT resources, the study analyzed the impact of required skills and competence by computer experience, years of computer experience were categorized into three levels: 0-5 years, 6-10 years, and 11 years and above. Findings of this study revealed that there were no statistically significant differences between the computers experiences in groups mean scores on the challenges faced in utilizing ICT resources (F=.158, p>0.5). A further examination of the mean scores showed that 6-10 and 11 years and above score (50.61, 50.05) slightly higher than the 1-5 years (49.53). The results showed that the higher the computer experience, the higher the mean scores. Hence lecturers and administrators who had higher experiences were able to utilize ICT in TVETs. However, this finding is different from that of Huang and Liaw (2005) who indicated that the length of computer use is associated with the successful utilization of ICTs in TVET changes the entire focus of manpower needs in the world; from skilled-based to ICT-Capable work force. This is corroborated by Sadik (2006) who found that teachers who have high computer experience have higher confidence, positive feelings and high perception of computer usefulness. This however, resonates well with the unique situation in Uganda as computer usage is a new experience in most of the institutions. The ANOVA (F ratio is the ratio of two or more mean square values) was used to analyze the mean challenge scores of the three groups and their ICT challenges and Table 5 show details.

Table 5: ANOVA results of Challenges faced in utilizing ICT in TVET institutions by Computer Experience N=84

| Years of computer Experience | N | X | SD | F | p |
|---|---|---|---|---|---|
| 0-5 | 10 | 49.53 | 7.97 | .158 | .854 |
| 6-10 | 57 | 50.61 | 6.54 | .561 | |
| 11 years and above | 38 | 50.05 | 7.55 | .314 | |

## Ways of Improving Use of ICT Resources in TVET Institutions

The study also conducted an independent-samples t-test to compare Lecturers and Administrators on ways of improving use of ICT resources in TVET institutions towards continuous assessment and improving the required skills and competence of the participants. The mean scores, standard deviations and t-test results of the two groups are presented in table 6.

The results in the table indicates that there were no statistically significant differences between the two groups means scores on ways of improving use of ICT resources in TVET institutions towards developing the required skills and competence. (t= .270, p>.05). The results showed that ways of improving use of ICT resources in TVET institutions were not influenced by categories of respondents.

Table 6: T-test Results of Respondents on Ways of Improving use of ICT Resources in Developing Required Skill and Competence in TVET Institutions N=84

| | Category of Respondents | N | X | SD | t-test | p-value |
|---|---|---|---|---|---|---|
| Challenges | Lecturers | 75 | 45.18 | 4.16 | .270 | .788 |
| | Administrators | 30 | 44.94 | 4.29 | | |

## Factor influencing ICT utilization

The study identified a number of factors which influenced utilization of ICTs resources in TVET institutions in developing required skill and competence in TVET students and these included; physical facilities and material resources such as computer rooms, furniture, and electric generators provided in institutions; TVET institutions improving on training and retraining personnel on ICT program management; TVET teachers being made to designing and delivering courses/lectures in electronic formats; stakeholders in TVET program being made to support TVET institutions with ICT facilities; appropriate software to use by teachers in TVET institutions being made available and Teachers developing skills in creating modules or courses for TVET students. The finding is consistent with similar studies (Zarini et al., 2009) who suggest that one of the possible means of acclimatizing TVET to develop human resources for the ever dynamic world of work is to focus its investment in the integration of ICTs in the curriculum implementation process (teaching and learning). Osakwe (2012) posits that the government should provide basic facilities and necessary infrastructure for the promotion of ICT at all levels of education and training programs.

## Conclusion

TVET aims at preparing learners for (self-) employment and to be a medium of evolution for people to the world of work; by making individual to have a sense of belonging in their communities. TVET makes ICT application a mandatory component that can aid to achieve a sustainable and globally recognized workforce. The findings of this study show that lack of time in the preparation of teaching materials, lack of knowledge and skills for the presentation of ICT teaching materials, inadequate technical and administrative staff and insufficient time to plan instruction, unstable electricity supply and teachers' competency are challenges to utilization of information communication technologies.

## Recommendations

1. There is need to provide funds and ICT facilities such as computer rooms, furniture, computers, and electric generators, training of Lecturers and Administrators in application and administrative software programs for school administration needs to be undertaken by the TVET institutions training teachers.
2. TVET institutions should procure and ensure that computers for teaching and administrative use are increased in number and are accessible to Lecturers and Administrators to improve on skills and competence levels.
3. Capacity building should be done to ease the utilization of ICT in continuous assessment.

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# Students' interest and motivation for agriculture careers and Agripreneurship: Global Imperatives

## Patrick Ekezie Egbule and Oghenebrorien Dimoni

Delta State University, Abraka, Nigeria.

## Abstract

This paper investigated secondary school students' interest and sources of motivation for agriculture careers and Agripreneurship in Delta State. Three research questions and two hypotheses guided the study. The study employed an ex-post facto research design, using survey method. The population for the study consisted of one hundred and thirty-four thousand, six hundred and ninety-five (134,695) senior secondary school students in public secondary schools in Delta State. A sample size of five hundred and forty (540) students was selected, using stratified multistage sampling technique. A structured questionnaire validated by three expects and with reliability index of 0.87 was used for data collection. Data collected were analyzed using Frequency Counts, Percentages, Mean, Standard Deviation and t-test, and inference drawn at 0.05 level of significance. The findings showed that Students derive their motivation from 7 sources, which included possibility of getting employment, quick returns, among others. The students had interest in 10 areas of agriculture careers for Agripreneurship which are regarded as their predicted career options. It was concluded that students should be motivated to choose careers from agricultural occupational areas. Agricultural Science teachers' capacity should be improved upon to enable them guide students on the various agriculture careers for Agripreneurship.

*Keywords:* interest, motivation, employment, agriculture career, and Agripreneurship

## Introduction

Agriculture is the mainstay of the economies of many nations. All over the world, the development of an enduring economy goes hand in hand with agricultural development. Agriculture is considered a catalyst for the overall development of any nation. It is thus a critical sector that drives the economic development and industrialization of the developing nations and holds the ace for reducing unemployment

(Adesina, 2019). Thus, agricultural development is critically important for ensuring food and nutritional security, income and employment generation, and for stimulating industrialization and overall economic development of the country (Ogbalubi & Wokocha, 2013). Agriculture was therefore introduced into the curriculum content of secondary schools in Nigeria because of its strategic socio-economic imperatives, educational value and relevance to the needs of the individual learner and the society.

One of the broad objectives of Nigerian education adopted by the 1967 National Curriculum Conference was the "inculcation of the right type of values and attitudes for the survival of individuals and the society at large". The conference recognized the fact that vocational studies, in which agricultural science is embedded, play a major role in the achievement of the above stated objective. Vocation, according to Maya (cited in Nwamuo, 2003) is one's chief gainful pursuit or occupation by which an individual's social and economic conditions are determined. The increasing awareness of the importance of agricultural education has driven various regimes in government and educators to embark on several review of agricultural curriculum at both secondary and tertiary institution and as well provide policies and incentives towards motivating young ones (secondary school students in particular) to study and engage in agricultural activities and programs. Unfortunately, despite the various efforts by government and other stakeholders, it has been widely known and reported that agricultural education program delivery in schools has been bedeviled by many problems (Olowa, 2007). These problems include students' poor interest in the subject, students' poor performance in the subject and the socio-economic background of the students.

In Nigeria traditional system of education, parents and other older and more experienced members of the community provided instruction in agriculture through the apprenticeship system (Egbule, 2016). Furthermore, agriculture was taught through the attachment of the learner/youth to understudy the master-farmer. According to him, this teaching approach was both practical and functional, leading to social responsibility, skill acquisition, self-reliance, and sound work ethics, spiritual and moral values.

However, this traditional system of education delivery has greatly influenced students' perception of what constitutes the agricultural industry and its career options. Orthel et al. (1989) observed that "The students perceive agriculture as farming and ranching only." The perception of a subject affects the student's interest in that subject area, and this has a significant relationship with the choice of occupation by students (Agusiobo,1989). Studies have shown that there has been considerable lack of interest in agriculture among the students and that educational students were very reluctant to associate themselves with farming (FRN, 2019; Yunander et al., 2019).

Motivation is the psychological feature that arouses an organism to action towards desired goal directed behaviors. In other words, students who are motivated are more likely to engage in a task willingly as well as work to improve on their skills and capability. Thus, no amount of motivation can be fruitful if positive perception, belief and understanding of the activity is not in place.

Vocational and technical education today is not socially friendly because of some misconceptions. To buttress this, Nwamuo (2003) noted that the fact that there were no formal requirements for entry into specific technical education vocations and that parents initially gave their handicapped children for trade in various traditional vocations which made people regard technical vocational education (TVE) as "education for the non-do-wells, for people with low intelligence, for the mentally retarded, physically handicapped, socially maladjusted and under-achievers". This poor perception of TVE has affected

the enrollment of students into TVE in tertiary institutions. Since agriculture is one of the vocational programs, it is expected that enrollments into agriculture programs will not be free from these wrong perceptions.

Also, students' motivation is also drastically influenced by a complex of interactions with their teachers, the context and culture of the school and community, and their personal experiences both in and out of the classroom (Pintrich, 2003). The vast set of influences on students' motivation means that no one individual or group can be solely responsible for motivating students. However, the importance of teacher influence on students' motivation is often enormous, making it clear that teachers really do make a difference (Hardre et al., 2008).

Wlodkowski (1999), Brewer and Burges (2005) suggested that motivation describes processes that arouse a desire to investigate behavior, give direction and purpose to behavior, continue to allow behavior to persist, or lead to choosing or preferring a behavior. Ajayi (1997) rightly observed that most students in Nigeria are shortsighted about various opportunities that exist in the field of agriculture. Peasant farming, which dominate agricultural activities in our local communities require much physical labor. Hence, students should be motivated as much as possible to develop interest in choosing a career in agriculture. The fact remains that Nigeria as a developing nation requires technically skilled manpower in agriculture to achieve her desired development initiatives. A sure avenue for achieving sustainable development is by focusing on students in our secondary education and by motivating them to choose careers in agriculture. Bryan (1999), noted that all those who work with the students in agricultural science should recognize the need for helping students to understand their own potentials which will enable them to set career and life goals.

Studies revealed that interest in an occupation had the strongest influence on the students in their career aspiration (Barau & Adesiji, 2017; Nneji,1999). Among other related factors are: the failure of some students' to rightly conceptualize the essence of studying agricultural science in secondary schools; absence of direction from the government and secondary school teachers; absence of emphasis on the importance of agriculture on the economic development and lack of recognition of the importance farmers' and those preparing to take careers in Agriculture. Some students feel that being a good farmer does not require further Agricultural training in tertiary institutions since there is little or no gainful remuneration from their long years of farming. Hence, many parents are hesitant to encourage their children to undertake a career in Agriculture.

Ebenebe (2000) see unemployment as a social problem which can exist when an individual's skills, attitudes and cognitive abilities are not gainfully engaged by the government or other agencies, or where the individual cannot by his own initiative engage oneself to earn a living. The youths have been the most vulnerable of this social menace. Okorie (2001) stated that unemployment is acute among Nigerian youths, especially the school leavers despite the Nigerian government's efforts at various times to reduce unemployment and alleviate poverty. Nigeria as a nation has been making conscientious effort to improve the living standard of people through the various policies and programs she has designed at one time or another to eradicate poverty. For instance, Operation Feed the Nation (OFN) of 1976 was to encourage people to return to farming; National Directorate of Employment of 1986 was established to capture the unemployed and equip them with the necessary skills that will make them employable and

self-sustaining (Onah, 2010).  Other programs include the National Accelerated Food Production Program (NAFPP), Poverty Eradication Program (PEP), National Economic Empowerment Development Strategy (NEEDS), to mention but a few. Despite the lofty objectives of the aforementioned programs, unemployment and poverty, more especially among the youths still persists.

The study is hinged on the Wlodkowski Theory of Motivation. It has practical implication for determining and improving students' attitude, interest, motivation and expectancy for success towards learning and for achieving careers goals. In other words, it is a theory that determines the influence of students' attitude, interest and the extent to which they are expected to be successful on their motivation to choose agriculture careers. It therefore shed light on a bigger picture of other factors influencing students' motivation to learn and serves as a helpful guide for teachers in developing new and practical approaches to improve and boost students' motivation to learn in the classroom and in choosing agriculture career. It becomes necessary therefore to establish the interest of students and their motivation for agriculture careers for Agripreneurship, and with global implications.

## Statement of the Problem

Observation and reports revealed that a high percentage of secondary school students lack interest, motivation and have poor perception of Agriculture careers and this has led to the decline in their involvement in Agricultural Entrepreneurship.  This has generated much concern among government, parents, teachers and other stakeholders in the Agricultural sector. Several factors have been adduced to be responsible for these trends, such as Agricultural experiences of secondary school students which may influence their level of motivation, interest, perception and attitude to career decision in Agriculture. According to Okorie (1999), most students pursue career in which they may not have interest. In such a situation, continuity and progress are seriously affected and the workers' performance is hampered. Hence there is need to guide and direct students towards capitalizing on their interest, aptitude, intrinsic intelligence and beliefs to highest possible degree so that they will eventually become satisfied workers. Based on the foregoing, the problem of this study therefore is focused on ascertaining the level of students' interest and motivation of Agriculture careers for Agripreneurship and with global implications for curbing youth unemployment and poverty.

## Purpose of the Study

The main purpose of this study is to investigate secondary school students' perception, interest and motivation of agriculture careers for Agripreneurship in Delta State. Specifically, the study sought to:
1. identify the secondary school students' sources of motivation in agriculture careers for Agripreneurship.
2. identify the secondary school students' area of interest of agriculture careers for Agripreneurship.
3. examine the global significance of secondary students' interest and motivation for Agripreneurship.

## Research Questions

The following research questions guided this study:

1.  What are the secondary school students' sources of motivation for agriculture careers for Agripreneurship?
2.  What are the secondary school students' areas of interest of the content of agriculture careers for Agripreneurship?
3.  What is the global significance of secondary students' interest and motivation for Agripreneurship?

## Research Hypotheses

The following hypotheses were formulated to guide the study:

1.  There is no significant difference in the mean response of male and female secondary school students' knowledge of the various types of agriculture careers.
2.  There is no significant difference in the mean response of male and female secondary school student on their sources of motivation in agriculture careers for Agripreneurship.

## Methodology

The study adopted ex-post facto research design, using the survey method. Survey research design is appropriate for the study because data was collected from a representative sample of the population while the result obtained was generalized on the entire population of the study area. The study was conducted in Delta State. Population of the study was 134,695 secondary school students in the 465 public secondary schools across the state. The researcher employed stratified multistage sampling technique to obtain the sample of 540 students. The questionnaire made up three sections with each section containing items covering each specific objective. The instrument was face and content validated by three experts. Two of the experts were from the Department of Vocational Education (Agricultural Unit) and one expert from Department of guidance and Counseling (measurement and evaluation unit), all from Delta State University, Abraka. The suggestions of the experts were used to improve the final draft of the questionnaire. The validated instrument was administered to 30 respondents outside the study state. The data obtained from the trial testing were subjected to split-half reliability test and a coefficient of .87 was obtained, indicating that the instrument was reliable for the study. Each item had a 4-point rating scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1) with their corresponding nominal values of 4, 3, 2 and 1 respectively. The instrument was administered by the researcher and three research assistants and retrieved immediately. Five hundred (500) copies of the instrument were well filled indicating 92.6% return rate and these were used for data analysis. Mean and standard deviation were used to answer the research questions, while the hypotheses were tested at 0.05 level of significance using t-test statistic. A cut-off point of 2.50 was used as the benchmark. Any item with a

mean rating of 2.50 and above is regarded as Agree while any item with a mean rating below 2.50 was regarded as Disagree. Hypothesis was rejected if the calculated t-value is greater than the critical value at 0.05 level of significance, otherwise the hypothesis will be accepted.

# Results

The results of the study were obtained from the research questions answered and hypotheses tested through data collected and analyzed.

**Research Question 1:** What are the secondary school students' sources of motivation in agriculture careers for Agripreneurship?

Table 1 reveals seven sources of secondary school students' sources of motivation for Agriculture careers for Agripreneurship. The seven items had mean values greater than the mean cut-off point of 2.50.They include: possibility of securing employment ($\bar{x}$ : 3.52); quick returns  ($\bar{x}$ :3.51);possibility of generating foreign exchange ($\bar{x}$ :3.51);possibility of generating income ($\bar{x}$ :3.49);possibility of attracting grants ($\bar{x}$ :3.45) remuneration ($\bar{x}$ :3.01) and  teacher influence ( 2.85).The other four (4) items had mean ($\bar{x}$) scores less than 2.50, revealing that they are not regarded as sources of motivation in agriculture careers for Agripreneurship.

Table 1: Mean Responses on Students' Sources of Motivation in Agriculture Careers (n=500)

| S/N | Items | Mean ($\bar{x}$) | SD | Remark |
|---|---|---|---|---|
| 1. | Quick returns | 3.51 | .500 | Agree |
| 2. | Remuneration | 3.01 | .817 | Agree |
| 3. | Possibility of generating income | 3.49 | .500 | Agree |
| 4. | Possibility of generating foreign exchange | 3.51 | .500 | Agree |
| 5. | Possibility of attracting grants | 3.45 | .498 | Agree |
| 6. | Possibility of securing employment | 3.52 | .500 | Agree |
| 7. | Love for animals | 2.36 | 1.100 | Disagree |
| 8. | Love for plants | 2.44 | 1.139 | Disagree |
| 9. | Parental influence | 2.46 | 1.126 | Disagree |
| 10. | Teacher influence | 2.85 | 1.063 | Agree |
| 11. | Influence of local farmer | 2.47 | 1.065 | Disagree |

Source: Field Work (2019)

**Research Question 2:** What are the secondary school students' areas of interest of the content of agriculture careers for Agripreneurship?

Table 2 presents the mean ($\bar{x}$) responses of secondary school student's areas of interest of the content of Agriculture careers for Agripreneurship. The result shows that nine (9) out of the nineteen (19) items

had mean ($\bar{x}$) scores less than the benchmark of 2.50. This implies that these contents areas of agriculture careers are not accepted by students as their areas of interest for Agripreneurship. However, the remaining ten (10) items had mean ($\bar{x}$) scores greater than 2.50; indicating that the items are contents of agriculture careers accepted by students as their areas of interest for Agricultural engagements. High mean scores were recorded for item 8 (Fishery, $\bar{x}$ : 3.53), 6 (Agricultural Engineering, $\bar{x}$ :3.50), 4(Agricultural Economics / Farm Business Management, $\bar{x}$ :3.47), 8 (Agricultural Education, $\bar{x}$ :3.04) and 1 (Animal Production, $\bar{x}$ :3.03).

Table 2: Mean Responses on Students' Areas of Interest of the Content of Agriculture Careers (n=500)

| S/N | Items | Mean ($\bar{x}$) | SD | Remark |
|---|---|---|---|---|
| 1. | Animal Production | 3.03 | .814 | Agree |
| 2. | Crop Production / Agronomy | 2.97 | .819 | Agree |
| 3. | Soil Science and surveying | 2.99 | .820 | Agree |
| 4. | Agricultural Economics / Farm Business Management | 3.47 | .500 | Agree |
| 5. | Agricultural Marketing | 3.00 | .786 | Agree |
| 6. | Agricultural Engineering | 3.50 | .500 | Agree |
| 7. | Forestry | 2.45 | 1.134 | Disagree |
| 8. | Fishery | 3.53 | .499 | Agree |
| 9. | Food Technology | 2.38 | 1.101 | Disagree |
| 10. | Ornamental Agriculture | 2.49 | 1.088 | Disagree |
| 11. | Pasture and Range Management | 2.46 | 1.117 | Disagree |
| 12. | Wildlife Conservation | 2.41 | 1.115 | Disagree |
| 13. | Greenhouse Operation and Management | 2.35 | 1.100 | Disagree |
| 14. | Agricultural Meteorology and Water Management | 2.45 | 1.109 | Disagree |
| 15. | Agricultural Education | 3.04 | .807 | Agree |
| 16. | Horticulture | 2.34 | 1.123 | Disagree |
| 17. | Agricultural Extension and Rural Development | 3.00 | .802 | Agree |
| 18. | Genetics | 2.48 | 1.133 | Disagree |
| 19. | Veterinary Medicine | 2.97 | .809 | Agree |

Source: Field Work (2019)

**Research Question 3:** What is the global significance of secondary students' interest and motivation for Agripreneurship?

The responses of Students' on the global significance of secondary students' interest and motivation for Agripreneurship shows that respondents agreed to the all items on the global significance of secondary students' interest and motivation for Agripreneurship identified in the study. The items that had the highest mean scores were: enhanced global peace and security (3.56); decreased global crime and social vices due to youth Agripreneurship engagements (3.54); opportunities for scholarship for youths who

show keen interest in Agripreneurship (3.53); opportunities for collaborations and partnerships be-tween youths in agricultural agencies, (3.53); and involvement of youth in exchange farming programs at both local and international levels (3.52).

Table 3: Mean Responses of Students' on the global Significance of Secondary Students' Interest and Motivation for Agripreneurship? (n=500)

| S/N | Items | Mean ($\overline{x}$) | SD | Remark |
|---|---|---|---|---|
| 1. | Responsiveness of agriculture institutions to local and international agricultural and vocational trends. | 3.50 | .500 | Agree |
| 2. | Opportunities for partnership in organizing capacity building fora for agriculture students. | 3.49 | .500 | Agree |
| 3. | Opportunities for scholarship for youth who show keen interest in Agripreneurship. | 3.53 | .499 | Agree |
| 4. | Opportunities for collaborations and partnerships between youth in Agricultural Agencies, both local and international. | 3.53 | .499 | Agree |
| 5. | Involvement of youth in exchange farming programs at both local and international levels. | 3.52 | .500 | Agree |
| 6. | Provision of funds and inputs subsidy for young farmers. | 3.49 | .500 | Agree |
| 7. | Information and opportunities for credit facilities and grants to boost Agripreneurship. | 3.51 | .500 | Agree |
| 8. | Opportunities for information on educational and Agripreneurship opportunities for agriculture students. | 3.46 | .499 | Agree |
| 9. | Decreased global crime and social vices due to youth Agripreneurship engagement. | 3.54 | .499 | Agree |
| 10. | Enhanced global peace and security. | 3.56 | .497 | Agree |

Source: Field Work (2019)

## Test of Hypotheses

**Hypothesis 1:** There is no significant difference in the mean responses of male and female secondary school students on their sources of motivation for agriculture careers for Agripreneurship.

Table 4 shows that the calculated t- value of (2.454) is greater than the table-value (.014) at degree of freedom 498, and at 0.05 level of significance. The hypothesis was therefore rejected, indicating that there is significant difference in the mean response of male and female secondary school student on their sources of motivation in agriculture careers for Agripreneurship.

Table 4: Summary of t-test Analysis on the Mean Responses of Male and Female Students on their Sources of Motivation for Agriculture Careers

| Sex | N | Mean ($\bar{x}$) | SD | Df | t-cal | t-tab | P | Decision |
|------|-----|------|------|-----|-------|-------|------|-------------|
| Male | 230 | 3.57 | .497 | 498 | 2.454 | .014 | 0.05 | Significant |
| Female | 270 | 3.46 | .499 | | | | | |

Key: N = Number of respondents; SD = Standard Deviation; df = degree of freedom, t-cal = t calculated; t-tab = table value of t; P = level of significance

Source: Field Work (2019)

**Hypothesis 2:** There is no significant difference in the mean responses of male and female secondary school students on their areas of interest of the content of agriculture careers for Agripreneurship. Table 5 reveals that there is significant difference in the mean response of male and female secondary school students on their areas of interest on the content areas of Agriculture careers for Agripreneurship. Thus, the hypothesis was rejected since the calculated t-value (1.421) is greater than the table value (.156) at 498 degrees of freedom, and at 0.05 level of significance.

Table 5: Summary of t-test Analysis on the Mean Responses of Male and Female Students on their Areas of Interest of the Content of Agriculture Careers

| Sex | N | Mean ($\bar{x}$) | SD | Df | t-cal | t-tab | P | Decision |
|------|-----|------|------|-----|-------|-------|------|-------------|
| Male | 230 | 3.53 | .500 | 498 | 1.421 | .156 | 0.05 | Significant |
| Female | 270 | 3.47 | .500 | | | | | |

Key: N = Number of respondents; SD = Standard Deviation; df = degree of freedom, t-cal = t calculated; t-tab = table value of t; P = level of significance

## Discussion of Findings

The results from Table 1 showed that secondary school students derive their motivation for agricultural engagements from 7 sources, and these include the possibility of getting employment, quick returns, generating foreign exchange, teacher influence, among others. This finding is in agreement with Pintrich (2003), and Yunandar et al. (2019), which revealed that students' motivation is influenced by a complex set of interactions with their teachers, the context and culture of the school and community, and their personal experiences both in and out of the classroom. The finding is also in line with Hardre et al. (2008) who stated that students' motivation in agriculture may be influenced to a larger degree by their teachers than by their peers because of the dual impact on students as a result of teachers' roles as educators and as prominent members of the community; and Chauhan (2000) who opined that occupational attractiveness and vocational choice by adolescents are largely based on the prestige, income and social recognition.

The results from Table 2 revealed that secondary school students had interest in 10 areas of agriculture careers for Agripreneurship which is regarded as their predicted career decision. These areas are

in accordance with those stated by Egbule (2002) and Pandey (2013), who noted that several areas of entrepreneurship include activities like dairying, aquaculture, goat rearing, rabbit rearing, floriculture, shrimp farming, sheep rearing, nursery farming and marketing of agricultural produce. Based on students' areas of interest for Agriculture careers, it is expected that for an individual to aspire to choose a career in agriculture, he needs to be exposed to situations where he can develop an understanding of an appreciation for career opportunities in Agriculture, and develop vocational competencies needed by the individual preparing to engage in such  occupations (Osuala, 1998). It is therefore very important that appropriate and respective attitude towards Agriculture opportunities be instilled in the students so that they can develop the right perspective, attitude and interest towards it (Chauhan, 2000).

The results from Table 3 revealed that secondary school students agreed to the ten items on the global significance of secondary students' interest and motivation for agriculture careers. The highest mean scores were recorded on enhanced global peace and security , decreased global crime and social vices due to youth agricultural engagements , opportunities for scholarship for youth who show keen interest in Agripreneurship, opportunities for collaborations and partnerships by youth in agricultural agencies, and involvement of youth in exchange farming programs at both local and international levels.

Hypothesis 1 showed that there is significant difference in the mean response of male and female secondary school student on their sources of motivation in Agriculture careers for Agripreneurship. This implies that sex is an important factor that influences students' interest and motivation for Agriculture careers.

The result from hypothesis 2 revealed that there is significant difference in the mean response of male and female secondary school student on their areas of interest of the content of Agriculture careers for Agripreneurship. This indicates that sex determine students' area of interest of the content of Agriculture careers for Agripreneurship.

National and global partnerships for Agripreneurship is currently receiving wider attention as it offers youths and individuals the opportunities to use their skills and passion to expand their chances, especially for people living in poverty and unemployment. Global partnership becomes necessary as it will expose the teachers of agriculture to various needs that are important to the students as well as in the teaching of vocational technical subjects. This will also help the students to be exposed to various practical knowledge in the various agriculture careers and thus help them to develop the right attitude to work, different job opportunities and knowledge on the different agriculture careers for Agripreneurship, as well as creating opportunities for collaborations and partnerships between youth in agricultural agencies at both local and international levels. Youth Agripreneurship is currently both a national and global need, largely due to potential positive impacts and the need for decreased social vices and global crime.

## Conclusion and Recommendations

This study's findings revealed that secondary school agricultural science students' sources of motivation in choosing occupational areas for Agripreneurship lie mainly on the possibility of getting employment, quick returns, generating foreign exchange, generating income, teacher's influence, remunerations and

getting grants. Results also show students' major interests in occupational areas such as Fishery, Agricultural Engineering, Agricultural Economics/Farm Business Management, Agricultural Education, Animal Production, Agricultural Marketing, Agricultural Extension and Rural Development. Other areas include Soil Science and surveying, Crop Production/Agronomy and Veterinary Medicine, which is assumed as their predicted career decision in Agricultural Science for Agripreneurship. It is expected that encouragement from their parents, guidance and teachers will improve their interest and motivation towards choosing a career in Agriculture for Agripreneurship.

Based on the findings of the study, it was therefore recommended that:

1.  Principals and Agricultural Science teachers should work together with the Young Farmers' Club (YFC) to organize career day and seminars on Agriculture for students to enable them to gain an insight into the various Agriculture careers available for Agripreneurship.

2.  Agricultural Science teachers' capacity should be improved upon through seminars and workshops to enable them guide students on the various careers available for Agripreneurship.

3.  Agricultural Science teachers should group and assign projects to students according to their areas of interest to enable them work together towards achieving their career goals

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# Integration of security awareness education into technical and vocational education training curriculum: Opinions of technical teachers in Nigeria

**Francisca Nebechi Nnajiofor**

Nnamdi Azikiwe University Awka, Anambra State. Nigeria.

**Michael Ubale Cyril**

Modibbo Adama University of Technology, Nigeria.

**Kerter Eric Gowon**

Modibbo Adama University of Technology, Nigeria.

## Abstract

The study investigated opinions of technical teachers on the integration of security education into TVET curriculum. Five research questions were raised and one null hypothesis. Descriptive survey design was adopted for the study. A questionnaire structured in five-point rating scale was used as instrument which underwent face validation by three experts and a reliability coefficient of 0.79 was obtained with Cronbach's Alpha method. The population was 116 respondents made of technical teachers in the four Science and Technical Colleges and a Vocational Centre within the study area. Data collected were analyzed using mean and standard deviation to answer the research questions, while z-test statistics was used to test the hypothesis at 0.05 level of significance. The study concludes that technical teachers unanimously agreed upon the inclusion of security education in the TVET curriculum. The findings of this study revealed among others that TVET teachers are not adequately equipped with the knowledge of TVET related security issues in spite the community members' readiness to accept the inclusion of security education in TVET curriculum. The researchers recommended that security education should be included into the TVET curriculum, and there should be close monitoring to ensure conformity to avoid misinterpretation/misuse.

*Keywords:* TVET, Security, Risk, Crisis, Safety, Curriculum, Adamawa State.

**Introduction**

Nigeria has been facing different security challenges and threats ranging from kidnapping, vandalism, ritual killings, sexual violence, child trafficking, religious intolerance, insurgence, domestic violence, bombing, unrest, unwarranted agitations among others. All these are evidenced in the killings by Boko Haram and the herdsmen in a significant part of Northern Nigeria and a portion of the south making the lives and properties of Nigerians to be insecure. *These have also affected the education sector negatively; an example of the negative effect of security issues in Nigeria on the education sector is the recent abduction of 110 Dapchi female pupils which leaves Nigerian schools with more than a sense of fear of the scandalous kidnapping of about 300 girls in a hostel in Chibok as reported by Guardian newspaper on 8th March, 2018. More important is the fact that the latest abduction reveals the absence of safety measures in schools.* Mohammed (2017) reported that armed robbery, political thuggery, poverty, unemployment, and insecurity have ravaged the Nigerian economy such that all these challenges have affected the economy and provoked social crises in Nigeria which by extension has affected the peace and stability of the nation.

The government of Nigeria therefore device coping mechanism such as transformation agenda to promote economic growth, self-reliance, full security and employment generation to eradicate poverty and usher in peace as well as security of life and property (Ojukwu, 2017). In the agenda, government gave prominence to technical education to inspire a good economy and self-reliance society and in doing so, entrepreneurship was introduced whereby student will be trained towards self-employment. This is likely to reduce idleness after graduation and prevent them from violent acts since an idle hand is the devil's workshop. The Nigerian Education Research and Development Council (NERDC) between 2005 and 2007 reacted to the above challenges with emphasis on insecurity and reforms aimed at the socio-economic sectors thereby paving way for the development of a 9 year education curriculum for the first nine years of basic education. The curriculum was expected to foster the achievement of the set goals and objectives of the Millennium Development Goals (MDG), as well as those set by Education for All (EFA).

Security education was integrated into the 9-year Basic Education Curriculum (BEC) (Nigerian Primary and Junior Secondary Schools) under religious and national values upon its approval in September 2012 but was never implemented. On the bases of this, it is important that security education awareness should be incorporated into the TVET curriculum since security is a significant aspect of man's live; the need to introduce security related discourse into the TVET curriculum cannot be overemphasized. This is in line with the submission of Mohammad (2017) that education is the bedrock of all development. Modern development can be enhanced through TVET which is not feasible in an unsecured environment, hence, if security education is integrated in the TVET curriculum, students will be fully aware of security issues, device safety strategies and peaceful co-existence.

Furthermore, when TVET students are conscious of the security needs and challenges of their immediate environment through the content of the TVET curriculum, the application of technical and vocational knowledge impacted through this curriculum would evolve constructive and not destructive innovations and technology. The knowledge of technical and vocational skill is of tremendous use

in solving diverse problems of humanity and providing solution to natural and artificial problems in the world at large (Awofala, 2014). These diverse problems among others include security challenges as experienced in Nigeria and other parts of the world.

Security is defined as a state of society of tranquillity and it has two components: the emotional security which is the individual and the community's feeling of the need for security, and the procedural security which is the regulatory efforts to achieve or restore security (Carter, 2002). According to Nzewi (2014), security addresses the risk of harm due to intentional criminal acts such as assault, burglary or vandalism. Also, Ojukwu (2017) who sees security as the dynamic condition which involves the relative ability of a state to counter threats to its core values and interest and their primary beneficiaries are the citizens. So, security is the sense of reassurance that is felt by the individual, whether because of the absence of threats to his or her existence, or because of having the means to confront such threats as they arise (Henry et al., 2008).

Nzewi (2014) views the source of these security challenges in Nigeria as where students experience bullying, teasing, or personal property damage and theft during and on the way to and from school. The growing and critical need for qualified Science, Technology Education and Mathematics (STEM) teachers has been called upon this national security issue. Thus, one can visualize the fact that security issues can be viewed either at the microscopic level or the macroscopic level.

According to the expert roundtable convened by the Tony Blair Faith Foundation and the United Nation Security Council Counter-Terrorism Committee's Executive Directorate (UNCTED) in July 2014, cited by Ghosh et al. (2016), the need for better cognizance of research and understanding between education and extremism was stressed. The roundtable review found that social institutions, like schools and universities have not been sufficiently supported to effectively foster resilience in students to resist the pull of extremist ideology and narratives. Since universal education implies that all young people spend approximately 16 years of their lives in schools, education is an obvious tool with which to develop resilience and offer a counter-narrative.

## The Need for a Security Based TVET Curriculum—
## The Change Process in the Classroom

Schools are supposed to be among the safest places for children to be, while their parents or guardians are at work, hence the reason why teachers are called in the place of a parent. Fullan and Stiegelbauer (1991) opine that change does not just happen in any society. It entails a gradual growth, with associated challenges, feelings, and satisfaction/dissatisfaction amongst others. For changing classroom practice, attention must obviously not only be limited to the production phase of a security based TVET curriculum, but also to what happens after the production, i.e. the transaction/implementation phase and the outcome phase. The standards for grading optimum performances should be identified earlier, structured or created prior to the commencement of the program. The intended and the observed should be compared to ascertain if there is a difference in outcomes. When there exists a desir-

able outcome, the program should be implemented subsequently, but when disparity exists, it should be modified, changed or fine-tuned to obtain desirable results.

The current situation of security challenges in the Northeast and by extension Nigerian context is worrisome, unacceptable and requires pro-active measures towards confronting and ameliorating such problems. To this end, the researchers identify the non – integration of security awareness education into the TVETs' curriculum as a major flaw in confronting security issues in Nigeria.

## Purpose of the Study and Research Questions

The main purpose of the study was to investigate the opinions of technical teachers on the integration of security education into the TVET curriculum.
The following research questions guided the study:
1.  What is the opinion of TVET teachers on the inclusion of security education in TVET curriculum?
2.  What is the knowledge of technical teachers on TVET related security issues?
3.  How often do technical teachers engage their students in risk and crisis management?
4.  What **a**re the security measures/equipment readily available at the technical college level?
5.  To what extent would members of the community readily accept the inclusion of security education in TVET curriculum?

### Hypothesis
One null hypothesis was formulated to guide the study and was tested at 0.05 level of significance: $H0_1$**:** There is no significant difference between the mean opinion of male TVET teachers and female TVET teachers on the inclusion of security education in TVET curriculum.

### Methodology
Survey research design was adopted for the study. The study was carried out in Adamawa State which is located in the North-East region of Nigeria, with a geographical coordinates of 9° 20' North, 12° 30' East and a land mass of about 39, 742, 12 km² (Adebayo & Tukur, 1999). The population of this study was 116 respondents made of technical teachers teaching in the three Government Science and Technical Colleges, Federal Science and Technical Colleges and a Vocational Centre within the study area. The population for this study was manageable hence, there was no sampling and sampling techniques in this study. The entire population was used as sample in the study. A 25-item structured questionnaire developed by the researchers titled "Integration of Security Awareness Education in Technical and Vocational Education Training Curriculum" (ISAETVETC)" was used for data collection. The instrument was validated by three experts in Technology Education Department, Modibbo Adama University of Technology, Yola. The instrument was trial tested using 5 respondents from a technical college that is not part of the sampled population. The data collected was analyzed using Cronbach Alpha Correlation Co-efficient which yielded 0.79. The coefficient indicated high internal

consistency which proved that the instrument was reliable to be used for the study. The data collected were analyzed using simple descriptive statistics of mean and standard deviation to answer research questions whereby a mean cut-off point of 3.50 was used for decision making. Any mean score of 3.50 and above was agreed upon while any mean score below 3.50 was disagreed upon. The research hypothesis was tested using z-Test at 0.05 level of significance.

## Results

**Research question 1.** What is the opinion of Technical teachers on the inclusion of security education in TVET curriculum?

Table 1 shows that technical teachers unanimously agreed on the inclusion of security education in TVET curriculum. The technical teachers are of the opinion that instruction of security education through TVET curriculum is key to securing a nation (with a = 3.94). Technical teachers also opine in confidence that the TVET schools will drive security education. However, the teachers slightly disagreed with security education being essential in every module of the curriculum. In conclusion, technical teachers are of the opinion that there is a need for the inclusion of security education in TVET curriculum.

Table 1: Mean and Standard Deviation of the Opinion of Technical Teachers on the Inclusion of Security Education in TVET Curriculum

| S/N | Statements | $X_1$ | $X_2$ | $X_G$ | σ | Remark |
|-----|------------|-------|-------|-------|---|--------|
| 1 | Instruction of security education through TVET curriculum is key to securing a nation | 4.11 | 3.76 | 3.94 | 0.29 | Agreed |
| 2 | Technical teachers are comfortable with the inclusion of security education in the TVET framework | 3.57 | 3.20 | 3.52 | 0.45 | Agreed |
| 3 | Technical teachers are confident that the TVET schools will drive security education | 3.70 | 3.94 | 3.82 | 0.36 | Agreed |
| 4 | Technical teachers will be better facilitators of security education | 3.82 | 3.42 | 3.76 | 0.50 | Agreed |
| 5 | Security education is essential in every module of the curriculum | 3.57 | 3.04 | 3.49 | 0.40 | Disagreed |

Key: $X_1$=mean rating of male teachers, $X_2$=mean rating of female teachers, $X_G$ =Item mean, σ=standard deviation

**Research question 2.** What is the knowledge of technical teachers on TVET related security issues?

Table 2 shows that the respondents agreed with all the suggested items on the knowledge of technical teachers with respect to TVET related security issues. Hence, technical teachers established that they are well equipped with respect to knowledge of TVET related security issues.

Table 2: Mean and Standard Deviation of the Opinion of Technical Teachers' Knowledge on the TVET Related Security Issues.

| S/N | Statements | $X_1$ | $X_2$ | $X_G$ | σ | Remark |
|---|---|---|---|---|---|---|
| 6 | Technical teachers understand TVET related practices that result to insecurity | 3.57 | 3.38 | 3.55 | 0.42 | Agreed |
| 7 | Most technical teachers possess prerequisite knowledge of security education from seminars/conferences | 3.48 | 2.96 | 3.54 | 0.41 | Agreed |
| 8 | Technical teachers are aware that security issues are not limited to kidnapping and rape | 3.70 | 3.94 | 3.82 | 0.36 | Agreed |
| 9 | Technical teachers are aware of the role of community in securing lives and properties | 3.82 | 3.42 | 3.76 | 0.50 | Agreed |
| 10 | Technical teachers require some levels of training on security education | 3.52 | 4.42 | 3.97 | 0.41 | Agreed |

Key: $X_1$=mean rating of male teachers, $X_2$=mean rating of female teachers, $X_G$ =Item mean, σ=standard deviation

**Research question 3.** How often do technical teachers engage their students in risk and crisis management?

The data relevant to the research question is presented in Table 3. On how often technical teachers engage their students in risk and crisis management, respondents were of the opinion that students are told of the need to be safety compliant. The teachers also agreed that occasionally, students are told to identify safe and unsafe conditions. However, three out of the five suggested items were disagreed upon. Therefore, technical teachers to some extent do not engage their students in risk and crisis management.

Table 3: Mean and Standard Deviation of the Opinion of Technical Teachers on Teacher's Engagement of Students in Risk and Crisis Management.

| S/N | Statements | $X_1$ | $X_2$ | $X_G$ | σ | Remark |
|---|---|---|---|---|---|---|
| 11 | Students are mostly involved in peace and conflict resolution quiz competitions | 3.41 | 2.98 | 3.35 | 0.44 | Disagreed |
| 12 | Production students are caution on the kind of tools/equipment they manufacture | 3.12 | 3.11 | 3.13 | 0.32 | Disagreed |
| 13 | Students are told of the need to be safety compliant | 3.70 | 3.94 | 3.82 | 0.36 | Agreed |
| 14 | Occasionally, students are told to identify safe and unsafe conditions | 3.82 | 3.42 | 3.76 | 0.50 | Agreed |
| 15 | Students are taken to security agencies on field trips | 3.57 | 3.04 | 3.49 | 0.40 | Disagreed |

Key: $X_1$=mean rating of male teachers, $X_2$=mean rating of female teachers, $X_G$ =Item mean, σ=standard deviation

**Research question 4.** What are the security measures/equipment readily available at the technical college level?

Opinions of technical teachers was sought on the safety equipment readily available at the technical colleges' level and the data relevant to the research question is presented in Table 4 below. Respondents almost unanimously disagreed with all the suggested items. That is, there are no security measures/equipment in the colleges, since the calculated mean for each item is below the bench mark mean.

Table 4: Mean and Standard Deviation of the Opinion of Technical Teachers on the Availability of Security Measures/Equipment in Technical Colleges.

| S/N | Statements | $X_1$ | $X_2$ | $X_G$ | $\sigma$ | Remark |
|---|---|---|---|---|---|---|
| 16 | The college has firefighting unit | 3.41 | 2.98 | 3.35 | 0.44 | Disagreed |
| 17 | Treat alarms | 3.12 | 3.11 | 3.13 | 0.32 | Disagreed |
| 18 | There is an armed security post in the college | 2.47 | 3.58 | 2.67 | 0.19 | Disagreed |
| 19 | Colleges are solidly fenced | 3.15 | 3.31 | 3.19 | 0.30 | Disagreed |
| 20 | The gatekeeper is equipped with security-check gadgets | 3.41 | 2.98 | 3.35 | 0.44 | Disagreed |

Key: $X_1$=mean rating of male teachers, $X_2$=mean rating of female teachers, $X_G$=Item mean, $\sigma$=standard deviation

**Research question 5.** To what extent would members of the community readily accept the inclusion of security education in TVET curriculum?

Result of analysis for research question 5 as shown in Table 5 revealed that there is a synergy between the colleges and the host community with item mean of 3.76 and standard deviation of 0.50. Result also showed that the community is obliged with the college securing the community forward and the college can easily share security ideas through the parents' forum. However, two suggested items were disagreed upon. Hence**,** it can be concluded that the community members will be in support of the inclusion of security education in the TVET curriculum.

Table 5: Mean and Standard Deviation of the Opinion of Technical Teachers on How Community Members would readily accept the Inclusion of Security Education in TVET Curriculum

| S/N | Statements | $X_1$ | $X_2$ | $X_G$ | $\sigma$ | Remark |
|---|---|---|---|---|---|---|
| 21 | There is a synergy between the colleges and the host community | 3.82 | 3.42 | 3.76 | 0.50 | Agreed |
| 22 | The community members accept the colleges' propositions readily | 3.23 | 3.51 | 3.29 | 0.31 | Disagreed |
| 23 | The community is obliged with the college securing the community forward | 3.70 | 3.94 | 3.72 | 0.36 | Agreed |
| 24 | The college can easily share security ideas through the Parents Forum | 3.67 | 3.40 | 3.64 | 0.46 | Agreed |
| 25 | The community mostly depends on the college for security hence will welcome the idea | 3.57 | 3.04 | 3.49 | 0.40 | Disagreed |

Key: $X_1$=mean rating of male teachers, $X_2$=mean rating of female teachers, $X_G$=Item mean, $\sigma$=standard deviation

## Hypothesis 1

There is no significant difference between the mean responses of male teachers and female teachers on the inclusion of security education in TVET curriculum.

Result in Table 6 below revealed that z-cal is 1.95 and is less than the z-crit of 1.96 at 0.05 level of significance. Hence, the null hypothesis was accepted indicating that there is no significant difference between the mean responses of male teachers and female teachers on the inclusion of security education in TVET curriculum.

Table 6: z-Test Analysis of Difference between Opinion of Male Teachers and Female Teachers on the Inclusion of Security Education in TVET Curriculum

| Respondents | N | X | $S^2$ | z-cal | z-crit | Remarks |
|---|---|---|---|---|---|---|
| Male Teachers | 105 | 3.38 | 0.07 | | | |
| | | | | 1.95 | 1.96 | Not Significant |
| Female Teachers | 11 | 3.18 | 0.04 | | | |
| Total | 116 | | | | | |

P< 0.05, N=numbers of respondents, x mean, SD=standard deviation, z-calculated value z- critical value.

## Discussion of Findings

The result obtained from this study shows that technical teachers are of the opinion that security education should be included in the TVET curriculum. This is in agreement with the assertion of Nwafor (2010) that stakeholders should intensify their advocacy on social security for sustainable development in Nigeria. Also, the technical teachers' opinion is due to the significant roles of TVET in national development. Hence, the inclusion of security education will expose TVET students to security awareness, the interrelationship between the TVET and security and how to use technological knowledge and vocational principles to combat problem of insecurity and make environment safe for people and property. To this end, TVET students will be exposed to the constructive application of principles of technology and vocations hence discourage destructive use.

Also, result showed that technical teachers established that they are well equipped with respect to knowledge of TVET related security issues. This is in line with Ojukwu (2017) who found that they possessed the adequate knowledge of, they are aware of the principles of technology and vocations that can safe life by using preventive measures to avoid conflict and violence, such as anti-bombs materials, bomb preventive materials and bomb detector, detector of poisonous materials, and chemicals in order to make the environment safe specifically the Nigerian environment safe.

The study found that technical teachers to some extent do not engage their students in risk and crisis management. This might be due to the non-inclusion of the security education in the TVET curriculum. If the security education is integrated, this will combat the problem of insecurity in the Nigerian environment. Teachers agreed that security materials should be readily available in schools because security materials are examples of the materials obtained when the knowledge of TVET are applied constructively to ensure safety of life and property. In the light of this, security education needs to be

applied in the TVET curriculum under safety education to complement the existing content. This will aid the colleges or centres to produce materials such as anti-bomb and bomb detector, good/secured fence as well as trained security personnel among others. The study revealed that that the community members will be in support of the inclusion of security education in the TVET curriculum because members of the community are peaceful people who want peace and safe environment for their children and any strategy that will ensure the safety of their wards. The study also found that there is no significant difference between the mean responses of male teachers and female teachers on the inclusion of security education in TVET curriculum.

## Conclusion

Based on the study findings, TVET teachers unanimously agreed upon the inclusion of security education in the TVET curriculum. Technical teachers also established that they are well equipped with respect to knowledge of TVET related security issues though, to some extent do not engage their students in risk and crisis management. Perhaps due to the fact, it is not part of the curriculum. It is imperative that technical teachers are properly equipped with adequate knowledge of TVET related security issues, so as to be proficient in teaching students some globally approved approaches in risk and crisis management. Conclusively, the study revealed that the community members will be in support of the inclusion of security education in the TVET curriculum. The study of TVET related disciplines is inevitable in any educational system. This is because TVET helps create and stimulate consciousness, curiosity, critical thinking and skills to create jobs as well as bring about national and by extension global development. Stringent approaches are generated in startling circumstances due to the knowledge of security awareness education in the TVET curriculum.

## Recommendations

Based on the findings, the followings are recommended;
1. Curriculum planners and other relevant agencies should make efforts to included security education into the TVET curriculum.
2. There should be close monitoring to ensure conformity to avoid misinterpretation or misuse.
3. Security is all encompassing, it is therefore important that it is implemented holistically in the TVET curriculum, thus, essential workshops or trainings should be organized for teachers to avoid misinterpretation.
4. The integration of security awareness education may proof daunting at the initial phase, immediate results may not be visible, but a gradual acceptance as to the need for security education is an essential elements such as security measures and equipment that would help to eliminate barriers as a result of security awareness neglect.

5. Secured fence with gate should be available in colleges with trained security personnel, anti-bomb and bomb – detector materials should be provided in schools. The concept of security should be all inclusive and not left solely for security operatives.

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# Secondary school students and teachers' awareness of vocational and innovation enterprise institutions in Rivers State

**Legborsi Nwineh**

Rivers State University, Nigeria

## Abstract

To increase access to technical and vocational education and training, the Nigerian government through private sector partnership, approved the establishment of Vocational Enterprise Institutions (VEI) and Innovative Enterprise Institutions (IEI). They are private sector driven institutions, meant to provide vocational and technology education. Unfortunately, enrollment in these schools seems to be extremely low compared to other secondary and tertiary level institutions that provide technical and vocational education. This study sought to find out secondary school students and teachers' level of awareness of vocational and innovation enterprise institutions in Rivers State, Nigeria. Data for this study were collected from students and teachers using a questionnaire. The sample for the study consisted of 1,215 participants including teachers and students, selected using multistage sampling technique. Data gathered were analyzed using frequencies and percentages. Results showed that level of awareness of VEI as well as IEI is generally low among teachers and students in the study area. The study recommends that awareness programs via bus advertisements, social media, and market campaign, among others, should be organized by these institutions to bring awareness of their programs.

*Keywords:* Technical and Vocational Education and Training, Vocational Enterprise Institutions, Innovation Enterprise Institutions, marketing,

## Introduction

Vocational education and training (VET) as described in the national policy on education by Federal Republic of Nigeria (FRN, 2014) aims at training manpower in applied sciences, business and technology at the craft, advanced craft and technical level; provision of vocational skills and technical knowledge needed for agricultural, commercial and economic development; provision of training for economic self-reliance. By these aims, VET serves as a tool for achieving sustainable development goal, targets 4.3 and 4.4. Target 4.3 aims at ensuring equal and affordable access to quality technical, vocational and

tertiary education, including university by all women and men. Similarly, target 4.4 aims at ensuring that the number of youth and adults with relevant technical and vocational skills, for employment, decent jobs and entrepreneurship increase substantially. Furthermore, by these aims, VET contributes to the attainment of sustainable development goal 1 which has to do with ending poverty in Nigeria (United Nations, 2015).

In Nigeria, access to VET outside of the university system is achieved through polytechnics, monotechnics, colleges of technology and technical colleges (National Board for Technical Education, [NBTE], 2017) in addition to vocational and technical training centers. In recent time, to further enhance access to VET, the government of Nigeria through private sector partnership approved the establishment of Innovative Enterprise Institutions (hear after referred to as IEIs) and Vocational Enterprise Institutions (hear after referred to VEIs). These institutions are private sector driven, meant to provide vocational and technology education at tertiary and post-basic levels respectively, to equip graduates of secondary school and working adults with vocational skills and knowledge needed for technical manpower demand of the nation's economy (NBTE, 2014). These institutions provide link between education, science, technology, innovation and the labor market; utilize latest technology to deliver the curricula and build the capacity of the leaner for creative and critical thinking towards transforming knowledge and skills into wealth and economic productivity; empower the individual and community economically through increasing employability; provide job opportunities for trainees by establishing partnership with industries and recruitment agencies (NBTE, 2014).

## Statement of the Problem

Innovative and Vocational Enterprise Institutions offer laudable programs designed to enable graduates to transit smoothly to the labor market. With these programs and objectives couple with the job prospects of VEIs and IEIs, one would have expected that enrollment in these institutions would have competed favorably with similar institutions such as technical colleges, polytechnics, monotechnics and colleges of technology that provide technical and vocational education in Nigeria. Unfortunately, enrollment in these institutions in Rivers State seems to be extremely low compared to other schools. Statistics of enrollment in VEIs and IEIs is shown in Table 1 below.

Table 1: Enrollment in IEIs and VEIs in Rivers State.

| | Innovation Enterprise Institutions | | Total | Vocational Enterprise Institutions | | Total |
|---|---|---|---|---|---|---|
| Session | Male | Female | | Male | Female | |
| 2011/2012 | 34 | 44 | 78 | 0 | 0 | 0 |
| 2012/2013 | 71 | 43 | 114 | 0 | 0 | 0 |
| 2013/2014 | 107 | 144 | 251 | 0 | 0 | 0 |
| 2014/2015 | 65 | 72 | 137 | 0 | 0 | 0 |
| Total | 277 | 303 | 580 | 0 | 0 | 0 |

Source: National Board for Technical Education (NBTE, 2017)

This situation of low enrollment in VEIs and IEIs is worrisome and calls for attention. The researcher suspected that level of awareness of these institutions among secondary school students, one of the targets groups for these institutions, could be low. This suspicion is based on the finding of Scolastica (2013) that low level of awareness of programs led to low enrolment in a Youth Polytechnic in Kenya. Furthermore, lack of awareness has been identified among contributing factors to low enrolment in technical education programs (Oviawe, 2017). It was against this backdrop that this study was conducted.

## Research Questions

The purpose of this study was to ascertain the level of awareness of vocational and innovation enterprise institutions in secondary schools in Rivers State. The following research questions guided the study:

1. What is the level of awareness among teachers in secondary schools of vocational and innovation enterprise institutions in Rivers State?
2. What is the level of awareness among secondary school students of vocational and  innovation  enterprise institutions in secondary schools in Rivers State?
3. How does the awareness level vary between teachers and students and between junior secondary and senior secondary students?
4. How does the awareness level vary across the three senatorial zones of Rivers State?

## Significance of the Study

Results from this study are expected to benefit the National Board for Technical Education, Innovation and Vocational Enterprise Institutions and students of secondary schools. Ascertaining the awareness level of VEIs and IEIs could help NBTE in their decision-making process towards enhancing access and enrolment in these institutions. In addition, the results would provide VEIs and IEIs with information on how much their target population are aware of their programs. This information could help them in strategizing towards enhancing awareness for improved enrollment. Eventually, enhanced level of awareness could further contribute to quality access to vocational education and training and thereby contributing to achieving the aims and objectives of IEIs and VEIs as well as achievement of sustainable development goal target 4.3 and 4.4.

## Literature/Conceptual Framework

The literature review for this study is built around the concepts of vocational education and training, Vocational education and training in IEIs and VEIs, awareness and social marketing. A review of literature on these concepts is presented in the sections that follow.

**Concept of Vocational Education and Training**

Vocational education and training programs equip individuals with skills to work in different occupational fields. In Nigeria, as specified in the National Policy on Education, vocational education and training is seen as a tool for sustainable development through which individuals could obtain training to acquire skills and knowledge for; solving environmental problems, self-reliance, agricultural, industrial, commercial and economic development (FRN, 2014). This shows that vocational education and training is an important tool for individual and national development in Nigeria. It is therefore imperative that quality access to vocational education and training is established in Nigeria. This, Innovation and Vocational Enterprise Institutions promise to offer through programs offering that focus on acquiring technical and vocational skills in the fields of information and communication technology (ICT), oil and gas technology, agriculture, welding and fabrication, fashion and clothing technology, hospitality and tourism, film and TV production, creative arts, construction and engineering, paralegal studies, telecommunications, manufacturing, professional development, banking and finance and others (NBTE, 2014).

## Concept of Awareness

Awareness is the knowledge about something gained by an individual (Odunlami & Akinruwa, 2014). It involves bringing an issue to the attention of the public (Office of Juvenile Justice and Delinquency Prevention, 2000). It is a way of mobilizing students to enroll in a vocational and technical education program (Chukwuka & Nma, 2015). Creating awareness about an educational program involves providing information about such program to prospective beneficiaries of the program. Such information includes name of program, requirements for enrollment, duration and career prospects (Ezeji, 2001). By these definitions, creating awareness of Vocational and Innovation Enterprise Institutions in secondary schools would mean informing secondary schools about the programs offered by these institutions. It will involve bringing to the attention of stakeholders (majorly students and teachers) in secondary schools, the programs offered by these institutions. Students re major stakeholders because they are the target group for programs offered in IEIs and VEIs. VEIs target students with Basic or Junior Secondary Certificate while IEIs target students with senior Secondary Certificate. The teachers also form major stakeholders because in course of their instructional delivery, they stand a better chance of telling students about programs of IEIs and VEIs. Thus, awareness of IEIs and VEIs by teachers could enhance students' awareness of the programs of these institutions. Gaining awareness of programs offered by an institution is very important both to the institutions and students. It provides information that could aid decision making towards making choice for enrolling into a program (Oviawe, 2017). Creating awareness of programs offered in IEIs and VEIs is therefore imperative if enrolment is expected.

## Concept of Social Marketing

Creating awareness towards promoting enrolment of an education program such as those offered in IEIs and VEIs is deeply rooted in the concept of social marketing which is viewed as the application of marketing concepts to social services (Philippine Technical Education and Skills Development Authority, 2010).  Initiated by Philip Kotler and Gerald Zaltman in 1971 (Nanda, 2015), social marketing deals with utilizing principles of marketing to create, communicate, and deliver value in order to influence a target audience for the benefit of both the audience and the society in general (Kotler & Lee, 2008). This description shows three major components of social marketing: communication, audience and the desired behavior change in the targeted audience. In creating awareness of IEIs and VEIs one desired behavior change is to increase enrolment. Philippine Technical Education and Skills Development Authority (2010) hypothesized that effective social marketing results in increased awareness of TVET, which in turn leads to changes in attitude towards TVET. To achieve high level of awareness of IEIs and VEIs in secondary schools in Rivers State, appropriate communication tools need to be employed to gain access to the targeted audience.

Common communication tools for creating awareness according to The City of Red Deer (n.d.) are brochures, bus advertisement, posters, print media, presentations, person-to-person, radio and television programs/advertisement, social media/social networking, and websites among others. Ways of creating awareness towards enhancing enrolment into vocational education and training programs identified by Oviawe (2017) include: organization of conference and workshops; follow up studies; field trips; journals, newspaper and magazine publications. How much of these communication channels have been employed to create awareness of programs offered by IEIs and VEIs in Rivers State and how much awareness students in secondary schools have of these programs form the major focus of this study.

### Empirical Studies

Empirical studies that focus on awareness of vocational education and training programs reviewed were those conducted by Ongachi and Okello (2014) whose study was conducted in Kenya on level of awareness on careers available for students learning Art and Design in secondary schools in Kenya; Chikwature and Oyedele (2016) who investigated factors contributing to low enrolment in Further Education Teacher Training Diploma in Polytechnics in Zimbabwe and Durujaye, Ajie and Aiyegbusi as well as Bloser (cited in Okwelle & Agi, 2018) who examined the factors responsible for low enrollment in TVET. Although, aspects of these studies focused on awareness of vocational education and training programs, none focused on level of awareness of programs offered in Innovation and Vocational Enterprise Institutions among students and teachers of secondary schools in Rivers State. This study therefore sought to fill this gap.

### Methodology

The study employed a descriptive comparative survey design which according to Lodico et al. (2010), is employed when a researcher intends to describe data gathered from a large sample, consisting of different demographic characteristics, regarding their beliefs, opinion or perception on an issue. In this

study, data on awareness of Innovation and Vocational Enterprise Institutions was collected from junior students, senior students, and teachers of secondary schools. Consequently, descriptive comparative survey design was deemed appropriate.

The study sample constituted 1215 participants comprising teachers, junior secondary three and senior secondary three students selected from across the three senatorial zones of Rivers State in Nigeria, through multistage sampling technique. In the first stage, non-proportionate stratified random sampling technique was employed to select three local government areas from each of the three senatorial zones. In the second stage, three schools were selected from each of the selected local government areas using simple random sampling technique. In the third stage, 15 teachers, 15 senior secondary three and 15 junior secondary three students were randomly selected from each of the selected schools. The instrument for data collection was a questionnaire. After administration, a total of 943 copies were returned and used for data analysis. Data collected was analyses using frequency and percentages.

## Results and Discussion

The results for the study are presented in Tables 2, 3 and 4. Table 2 provides answers to research questions 1 and 2. Table 3 provides answer to research question 3 while Table 4 provides answer to research question 4.

**Research Question 1**: What is the level of awareness of vocational and innovation enterprise institutions among teachers in secondary schools in Rivers State?

Table 2 shows that 60.3% of the teachers have heard about IEIs while 39.7% have not heard about IEIs. Similarly, 69.9% have heard about VEIs while 30.1% have not heard about VEIs. The responses show also that the percentage of teachers who know about the aims of these institutions, the courses they offer, career prospects of their courses and the entry requirements is lower than the percentage of teachers who do not have such knowledge. This is evident by 84.3% for those who do not know about the aims of the IEIs against 15.7% for those who know; 61.9% for those who do not know about the aims of VEIs against 38.1% for those who know; 80.1% for teachers who do not know about the courses offered in IEIs against 19.9% for teachers who know; 65.1% for teachers who do not know about the courses offered by VEIs against 34.9% for teachers who know; 79.5% for teachers who do not know about the career prospects of IEIs against 20.5% for teachers who know; 57.4% for teachers who do not know about the career prospects of VEIs against 42.6% for teachers who know; 82.7% for teachers who do not know about the entry requirement for IEIs against 17.3% for teachers who know and 76.3% for teachers who do not know about the entry requirement for VEIs against 23.7% for teachers who know. Clearly, this result shows that the level of awareness of IEIs and VEIs among teachers in secondary schools in Rivers state is low. Although majority of the teachers have heard about IEIs and VEIs, in-depth knowledge about these institutions is lacking among them. This result corroborates the findings of Wilberforce (2017) that unawareness of courses offered at technical institutes of science and technology in Kenya and their entry requirements existed among students for which these institutes targeted.

Table 2: Level of Awareness of VEIs and IEIs among Students and Teachers

| Statements of Awareness | Respondents | | | | | |
| | JSS3 (%) | | SSS3 (%) | | Teachers (%) | |
| | YES | NO | YES | NO | YES | NO |
| --- | --- | --- | --- | --- | --- | --- |
| Have you heard about Innovation Enterprise Institutions before now? | 37.0 | 63.0 | 28.4 | 71.6 | 60.3 | 39.7 |
| Have you heard about Vocational Enterprise Institutions before now? | 49.7 | 50.3 | 28.8 | 71.2 | 69.9 | 30.1 |
| Do you know the aims of Innovation Enterprise Institutions? | 6.1 | 93.9 | 6.7 | 93.3 | 15.7 | 84.3 |
| Do you know the aims of Vocational Enterprise Institutions? | 6.4 | 93.6 | 10.9 | 89.1 | 38.1 | 61.9 |
| Do you know courses offered in Innovation Enterprise Institutions? | 9.2 | 90.8 | 2.1 | 97.9 | 19.9 | 80.1 |
| Do you know courses offered in Vocational Enterprise Institutions? | 9.8 | 90.2 | 6.0 | 94.0 | 34.9 | 65.1 |
| Do you know the career prospects of courses offered in Innovation Enterprise Institutions? | 1.2 | 98.8 | 2.8 | 97.2 | 20.5 | 79.5 |
| Do you know the career prospects of courses offered in Vocational Enterprise Institutions? | 0.6 | 99.4 | 3.9 | 96.1 | 42.6 | 57.4 |
| Do you know the requirement for entry into Innovation Enterprise Institutions? | 1.4 | 98.6 | 2.1 | 97.9 | 17.3 | 82.7 |
| Do you know the requirement for entry into Vocational Enterprise Institutions? | 0.6 | 99.4 | 0.7 | 99.3 | 23.7 | 76.3 |

Field data, 2019 (JSS3=Junior Secondary School 3; SSS3=Senior Secondary School 3).

**Research Question 2:** What is the level of awareness of vocational and innovation enterprise institutions among students in secondary schools in Rivers State?

Results from Table 2 show that percentage of both JSS3 and SSS3 students who know about the aims of these institutions, courses offered, career prospects of their courses and the entry requirements is lower compared to the percentage of students who do not have such. This indicates that the level of awareness of IEIs and VEIs among students in secondary schools (both JSS 3 and SSS 3) in Rivers state is low. This low level of awareness among students is not surprising. Low level of awareness of these institutions among teachers could have also contributed to the low level of awareness among students so found. Teachers provide career advice to students and as such could only offer advice on careers or courses they have awareness of. The result agrees with the result obtained by Igberadja (2014) that inadequate societal awareness about the objective and prospects of technical education contributes to low enrolment in technical colleges.

**Research Question 3:** How does the awareness level vary between teachers and students?

The results in Table 3 show the variance in the level of awareness of IEIs and VEIs between teachers and students in secondary school in Rivers state. As shown, the percentage of teachers who have heard about IEIs and VEIs is higher than percentage of students who have heard. The result also shows that although the level of awareness of IEIs and VEIs is generally low for both teachers and students, the percentages of teachers who know about the aims of these institutions, the courses they offer, career prospects of their courses and the entry requirements are higher compared to that of the students. This result agrees with that of Ongachi and Okello (2014) who found from their study in Western Kenya that teachers and students had problem mentioning about ten careers prospects in Art and Design. The result further agrees with that of Muriithi (2013) who found that the level of awareness of courses offered by a Youth Polytechnic in Kenya was low.

Table 3: Variance in Level of Awareness between Students and Teachers

| | Respondents | | | | | | | |
| | Students | | | | Teachers | | | |
| | YES | | NO | | YES | | NO | |
| Statement of Awareness | F | % | F | % | F | % | F | % |
|---|---|---|---|---|---|---|---|---|
| Have you heard about Innovation Enterprise Institutions before now? | 209 | 33.1 | 422 | 66.9 | 188 | 60.3 | 124 | 39.7 |
| Have you heard about Vocational Enterprise Institutions before now? | 254 | 40.3 | 377 | 59.7 | 218 | 69.9 | 94 | 30.1 |
| Do you know the aims of Innovation Enterprise Institutions? | 40 | 6.3 | 591 | 93.7 | 49 | 15.7 | 263 | 84.3 |
| Do you know the aims of Vocational Enterprise Institutions? | 53 | 8.4 | 578 | 91.6 | 119 | 38.1 | 193 | 61.9 |
| Do you know courses offered in Innovation Enterprise Institutions? | 38 | 6.0 | 593 | 94.0 | 62 | 19.9 | 250 | 80.1 |
| Do you know courses offered in Vocational Enterprise Institutions? | 51 | 8.1 | 580 | 91.9 | 109 | 34.9 | 203 | 65.1 |
| Do you know the career prospects of courses offered in Innovation Enterprise Institutions? | 12 | 1.9 | 619 | 98.1 | 64 | 20.5 | 248 | 79.5 |
| Do you know the career prospects of courses offered in Vocational Enterprise Institutions? | 13 | 2.1 | 618 | 97.9 | 133 | 42.6 | 179 | 57.4 |
| Do you know the requirement for entry into Innovation Enterprise Institutions? | 11 | 1.7 | 620 | 98.3 | 54 | 17.3 | 258 | 82.7 |
| Do you know the requirement for entry into Vocational Enterprise Institutions? | 4 | .6 | 627 | 99.4 | 74 | 23.7 | 238 | 76.3 |

Field Data, 2019.

**Research Question 4:** How does the awareness level vary across the three senatorial zones of Rivers State?

Table 4 shows that the percentage of JSS3, SSS3 students and teachers from Rivers East (RE) senatorial zone who have heard about IEIs and VEIs is higher than their counterparts from Rivers South West (RSW) senatorial zone and Rivers South East (RSE) senatorial zone. This is evident by 45.9% from RE, 38.6% from RSE and 38.8% from RSW who have heard about IEIs; 56.6% from RE, 46.5% from RSE and 43.8% from RSW who have heard about VEIs. Similarly, the percentage of JSS3, SSS3 students and teachers from Rivers East (RE) senatorial zone who know the aims of VEIs is higher than their counterparts from Rivers South West (RSW) senatorial zone and Rivers South East (RSE) senatorial zone. The result further shows that the percentages of JSS3, SSS3 students and teachers from RE senatorial zone who know the courses offered by IEIs and VEIs, their career prospects and entry requirements are higher than their counterparts from RSE and RSW senatorial zones. This result shows that there is a higher level of awareness of IEIs and VEIs in Rivers East senatorial district than in other senatorial districts in Rivers State.

Table 4: Variance in Level of Awareness of VEIs and IEIs by Senatorial Zones

| Statements of Awareness | Senatorial Zones | | | | | |
| | RE (%) | | RSE (%) | | RSW (%) | |
| | YES | NO | YES | NO | YES | NO |
|---|---|---|---|---|---|---|
| Have you heard about Innovation Enterprise Institutions before now? | 45.9 | 54.1 | 38.6 | 61.4 | 38.8 | 61.3 |
| Have you heard about Vocational Enterprise Institutions before now? | 56.6 | 43.4 | 46.5 | 53.5 | 43.8 | 56.3 |
| Do you know the aims of Innovation Enterprise Institutions? | 8.6 | 91.4 | 10.9 | 89.1 | 10.0 | 90.0 |
| Do you know the aims of Vocational Enterprise Institutions? | 20.1 | 79.9 | 17.8 | 82.2 | 16.3 | 83.8 |
| Do you know courses offered in Innovation Enterprise Institutions? | 12.0 | 88.0 | 10.9 | 89.1 | 9.0 | 91.0 |
| Do you know courses offered in Vocational Enterprise Institutions? | 17.4 | 82.6 | 19.8 | 80.2 | 15.8 | 84.3 |
| Do you know the career prospects of courses offered in Innovation Enterprise Institutions? | 11.3 | 88.7 | 5.9 | 94.1 | 5.0 | 95.0 |
| Do you know the career prospects of courses offered in Vocational Enterprise Institutions? | 16.1 | 83.9 | 16.8 | 83.2 | 14.5 | 85.5 |
| Do you know the requirement for entry into Innovation Enterprise Institutions? | 10.2 | 89.8 | 5.0 | 95.0 | 3.8 | 96.3 |
| Do you know the requirement for entry into Vocational Enterprise Institutions? | 10.2 | 89.8 | 6.9 | 93.1 | 6.5 | 93.5 |

Field data, 2019 (RE=Rivers East; RSE=Rivers South East; RSW=Rivers South West).

The result was expected and not surprising. Rivers state has eight Innovation Enterprise Institutions, five of which offer Vocational Enterprise programs. Out of these eight, seven are situated within Obio/Akpor and Port Harcourt Local Government Areas, all in Rivers East senatorial zone. The other is situated in Bonny Local Government Area which is in Rivers South West senatorial zone. The fact that seven of these institutions are situated within RE senatorial zone may have influence the higher level of awareness so found. Although, the result shows this higher level of awareness by RE senatorial zone than others, there is generally, low level of awareness of IEIs and VEIs among JSS3, SSS3 and teachers in Rivers State. This result aligns with the views of Igbinedion and Ojeaga (2012) and Chukwuka and Nma (2015) that there is low enrolment in Technical and Vocational Education (TVE) programs which they attribute to probable lack of knowledge of the significance and career information of TVE.

## Conclusion and Recommendations

The study found that the level of awareness of Innovation and Vocational Enterprise Institutions is generally low among JSS3, SSS3 and teachers in secondary schools the three senatorial zones of Rivers State. It was also found that level of awareness of IEIs and VEIs among teachers is higher than that of students. In addition, it was found that level of awareness of IEIs and VEIs among SSS3 students is slightly higher than among JSS3 students. Furthermore, level of awareness among students and teachers from Rivers East senatorial zone is higher than in other senatorial zones of Rivers State. Based on this result there is urgent need to boost the awareness of these institutions in Rivers state so that enrolment can be revamped.

Based on the results, the following recommendations are provided.

1. Innovation and Vocational Enterprise Institutions should organize programs such as open day both in secondary schools and within the institutions, TV jingles and bus advertisement among others.
2. Innovation and Vocational Enterprise Institutions should employ social media tools such as WhatsApp, Facebook, and others to create awareness of their programs.
3. Innovation and Vocational Enterprise Institutions should organize market campaigns to create awareness of their programs.
4. National Board for Technical Education should organize seminars/workshops to create awareness of programs offered by Innovation and Vocational Enterprise Institutions for secondary schools.
5. Innovation and Vocational Enterprise Institutions should partner with secondary schools to arrange field or industry visit for students. This way IEIs and VEIs could talk about their programs.
6. Innovation and Vocational Enterprise Institutions should partner with industry to enhance employment opportunities for their students. This way, interest will be created in the public and thereby influence awareness positively.

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# Enhancing acquisition of practical skills for sustainable development of females in Electrical Installation and Maintenance Work trades in technical colleges

**Muhammed Adamu Yusuf**

Modibbo Adama University of Technology, Nigeria

**Isaac John Ibanga**

Akwa Ibom State Ministry of Education, Nigeria

**Dauda Moses**

Modibbo Adama University of Technology, Nigeria

**Aniekan Elijah Asukwo**

Modibbo Adama University of Technology, Nigeria

## Abstract

This study sought ways of enhancing acquisition of practical skills for sustainable development of females in electrical installation and maintenance work trade in technical colleges. The study answered three research questions and tested two null hypotheses using survey research design. The population of the study was 129 comprising of 49 teachers, 38 electrical installation workshop attendants and 42 parents. The whole population was used for the study, hence there was no sampling. Instrument for data collection was a structured questionnaire titled 'Female Practical Skills Acquisition Enhancement Questionnaire (FSAEQ) consisting of 77 items. The FSAEQ was validated and trial tested on six teachers, eight workshop attendant and 15 parents in Cross River State, data collected was used to obtain reliability coefficient of 0.74 using Cronbach Alpha method. Final copies of the instrument were then administered on the respondents, mean and ANOVA statistics were used to analyze data collected. Findings of the study revealed that female students needs practical skills in accessories installation, drawing in wires into conducts, identifying electrical symbols, polarity testing, among others. Hence it recommends that female students should be encouraged to acquire practical skills and practice without discrimination of any sort from the society and industries.

*Keywords:* Practical, Skill Acquisition, Female, Electrical Installation and Maintenance Works, Sustainable Development, Technical Colleges

## Introduction

Technical Vocational Education and Training (TVET) in Nigeria is undertaken across the three levels of education as a program meant for practical, life-long and work skills acquisition; nevertheless, more emphasis is placed on the program at two levels, namely secondary and tertiary education (Osuala, 2004). According to Bassualdo and Toby (2004), the emphasis of TVET is preparing individuals with the appropriate skills necessary to enter into a job either by being employed by others or self-employed. The technical colleges and polytechnics are set up to graduate craftsmen, technicians and technologists. The third level is the skill acquisition centers wherein people of different ages could simply acquire basic functional skills through apprenticeship (Ede et al., 2010)

The objective of domestic installation is to provide the students with knowledge and skills to enable them to perform electrical installation in buildings. The National Business and Technical Examination Board (NABTEB, 2007) identified basic electricity, battery charging, cable joining, domestic and industrial installations as the content area skills that should be covered in electrical installation and maintenance works (EIMW). Chukwuedo et al. (2012) maintained that EIMW is commonly taught across technical education programs and appears to be the most demanding and needed part of the trade.

Technical colleges in Nigeria are the training ground for skill acquisition and every sector of the economy requires one form of skill or the other to function effectively. According to Moses (2017), skill acquisition in technical and vocational education could help the learner to; cultivate a right attitude to work, have a good sense of duty and respect for the dignity of labor. Preparing the learner to be worthwhile in vocational education activities or as business owners, acquire saleable skills needed to improve the production, marketing and exchange of raw materials for man and industries (Adebisi, 2015).

It is unfortunate that the practical skill acquisition in EIMW in general has been stereotyped to favor a certain gender. This is corroborated by the observation of Lynn and Jaan (2008) that in science and technical class, where discussion, problem-solving and laboratory excises are involved, the male students dominated the discussion and laboratory activities performing the experiment and the female students passively watch and take notes. This may not be unconnected to the stereotyping of the society to the opinions about behavior and activities considered as appropriate for males and females (Adesope & Nwaneke, 2007).

## Statement of the Problem

There is often conscious and unconscious discouragement of female participation in technical subject both from the school and home. Many teachers and parents not only believed that girls are academically less capable than boys in technical subjects, they also believed that girls were less interested in technical issues and more easily distracted and were more interested in unrelated issues like physical appearance. In African traditional society, the technically inclined practical skill acquisition of female did not receive early significant attention due to the second-class status assigned to women in the society. Hence, women are relegated to mere agents of domestic engagements at home, with considerable reproductive roles.

This apathy arising from the gender disparity has also affected female practical skill acquisition in Nigeria particularly in technical related trades in Akwa Ibom State technical colleges, as a result, the male folks have dominated the engineering aspect in Nigerian technical education and allied disciplines making it look like its legitimately manly. It is against this background that this study sought to enhance acquisition of practical skill for sustainable development of females in EIMW trade in technical colleges of Akwa Ibom state.

## Purpose of the Study & Research Questions

The purpose of this study specifically is to determine: 1) the practical skills needed by female students of EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals; 2) the factors affecting practical skill acquisition by female students of EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals; and 3) the strategies for improving female students' practical skill needed in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals. Specific research questions for the study were:

1. What are the practical skills needed by female students of EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?
2. What are the factors affecting practical skill acquisition by female students in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?
3. What are the strategies for improving female student's practical skill needed in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?

### Hypotheses

$H_{O1}$: There is no significant difference between the mean responses of teachers, workshop attendants and parents on the practical skills needed by female students in Electrical installation and maintenance work trade in technical colleges for achieving sustainable development goals in Akwa Ibom state.

$H_{O2}$: There is no significant difference between the mean responses of teachers, workshop attendants and parents on the factors affecting practical skill acquisition by female students in Electrical installation and maintenance work trade in technical colleges of Akwa Ibom state for achieving sustainable development goals.

## Methodology

This study was conducted in Akwa Ibom state of Nigeria employing a survey research design. The sample of the study was 129 comprising of 49 teachers of Electrical installation and maintenance work trade, 38 workshop attendants and 42 parents of female students. The entire population was used for the study. Therefore, no sampling technique was used for the entire population. Instrument for data collection was a structured questionnaire developed by the researchers titled 'Female Practical

Skill Acquisition Enhancement Questionnaire (FSAEQ). The two sectioned instrument consisted of 77 items. Section A of the instrument solicited personal information from respondents; section B is further divided into three parts in which each part dealt with the research question; part I solicited information from respondents on the practical skills needed by female students of EIMW trade; part II dealt with the information on the factors affecting practical skill acquisition by female students of EIMW trade and part III dealt with the strategies for improving female students practical skill needed in EIMW trade. All the parts in Section B were treated on a five-point rating and Likert scale, as follows: Very Highly Needed (VHN)/Strongly Agreed (SA) = 5 points, Highly Needed (HN)/Agreed (A) = 4 points, Moderately Needed (MN)/Undecided (U) = 3 points, Slightly Needed (SN)/Disagreed (D) = 2 points and Not Needed (NN)/Strongly Disagreed (SD) = 1 point

The instrument was validated by three lecturers all from the Department of Vocational Education, University of Uyo, Akwa Ibom state. The reliability of the instrument was determined by trial-testing the instrument on six teachers, eight workshop attendants and 15 parents in Government technical colleges in Cross River state. In order to determine the internal consistency of the instrument, Cronbach Alpha () method was used to determine the reliability coefficient of the instrument which was found to be 0.74. Copies of the instrument were distributed to the respondents and retrieved with the help of two research assistants. The three research questions were answered using the grand mean and standard deviation while the F-ratio (Analysis of Variance, ANOVA) was used to test the null hypotheses at 0.05 level of significance. All items with a mean score of 3.50 and above were considered needed/agreed, while items with mean score less than 3.50 were considered not needed/disagreed. Any hypothesis with *p* value less than or equal to 0.05 was regarded as significant; otherwise, it was not significant. The description of all the items was based on upper and lower real limit of numbers, thus;

| Limits | Designation |
|--------|-------------|
| 4.50 – 5.49 | VHN/SA |
| 3.50 – 4.49 | HN/A |
| 2.50 – 3.49 | MN/U |
| 1.50 – 2.49 | SN/D |
| 0.50 - 1.49 | NN/SD |

## Results

**Research Question 1:** What are the practical skills needed by female students in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?

Table 1 shows that respondents identified items 1-33 as practical skills needed by female students of EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals with a grand mean score of 4.03 and standard deviation 0.51 indicating that the respondents are close in their responses.

Table 1: Mean and Standard deviation of Teachers, Workshop Attendants and Parents on the practical skills needed by female students of EIMW trade

| S/N | ITEMS | RESPONDENTS | | | | | | | | Decision |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nt = 49 | | Nw = 38 | | Np = 42 | | | | |
| | | $\bar{x}_t$ | $\sigma_t$ | $\bar{x}_w$ | $\sigma_w$ | $\bar{x}_p$ | $\sigma_p$ | $\bar{x}_G$ | $\sigma_A$ | |
| 1. | Carrying out testing of polarity in an installation. | 4.02 | 0.50 | 4.55 | 0.66 | 4.00 | 0.49 | 4.18 | 0.55 | N |
| 2. | Identification of any type of incandescent lamp | 3.86 | 0.46 | 3.84 | 0.43 | 4.10 | 0.51 | 3.92 | 0.47 | N |
| 3. | Cutting of P.V.C conduit pipe according to the required shape and size | 4.08 | 0.47 | 4.16 | 0.55 | 4.03 | 0.51 | 4.09 | 0.51 | N |
| 4. | Identification of conduit work tools | 4.29 | 0.51 | 4.26 | 0.58 | 3.76 | 0.45 | 4.11 | 0.52 | N |
| 5. | Applying of spirit level | 3.73 | 0.41 | 3.76 | 0.48 | 3.88 | 0.47 | 3.79 | 0.45 | N |
| 6. | Identifying rating of cables | 3.67 | 0.41 | 4.08 | 0.54 | 4.00 | 0.49 | 3.90 | 0.48 | N |
| 7. | Selecting standard Armored cables | 3.51 | 0.39 | 3.50 | 0.46 | 3.60 | 0.43 | 3.54 | 0.42 | N |
| 8. | Using gimlet properly | 3.67 | 0.41 | 4.00 | 0.52 | 3.31 | 0.41 | 3.65 | 0.45 | N |
| 9. | Identifying electrical symbols | 4.04 | 0.46 | 4.26 | 0.58 | 4.55 | 0.62 | 4.27 | 0.56 | N |
| 10. | Interpreting working drawings | 4.14 | 0.48 | 4.05 | 0.53 | 4.07 | 0.51 | 4.09 | 0.51 | N |
| 11. | Identifying single phase drawings | 3.71 | 0.41 | 4.13 | 0.55 | 3.98 | 0.49 | 3.92 | 0.48 | N |
| 12. | Identifying 3-phase drawings | 3.76 | 0.42 | 3.97 | 0.51 | 3.93 | 0.48 | 3.88 | 0.47 | N |
| 13. | Utilizing drill for working | 3.83 | 0.41 | 4.03 | 0.53 | 4.02 | 0.50 | 3.95 | 0.48 | N |
| 14. | Performing surface and conduit wiring | 3.96 | 0.45 | 4.26 | 0.57 | 4.11 | 0.65 | 4.10 | 0.56 | N |
| 15. | Drawing in wires into conducts using fish wire | 4.33 | 0.52 | 4.37 | 0.61 | 4.50 | 0.61 | 4.40 | 0.58 | N |
| 16. | Identifying functions of fuses and circuit breakers | 4.02 | 0.46 | 4.24 | 0.57 | 4.21 | 0.54 | 4.15 | 0.52 | N |
| 17. | Properly installing earthen systems | 4.33 | 0.52 | 4.18 | 0.56 | 4.00 | 0.50 | 4.18 | 0.53 | N |
| 18. | Installing 3-phase earth leakage circuit breakers | 4.37 | 0.53 | 4.11 | 0.54 | 3.62 | 0.43 | 4.05 | 0.50 | N |
| 19. | Installing double socket outlets | 4.37 | 0.53 | 4.00 | 0.52 | 3.81 | 0.46 | 4.08 | 0.50 | N |
| 20. | Installing water tight appliances | 4.10 | 0.48 | 4.03 | 0.53 | 3.64 | 0.44 | 3.93 | 0.48 | N |
| 21. | Applying lubricants on machine | 3.55 | 0.39 | 3.76 | 0.48 | 3.62 | 0.43 | 3.64 | 0.43 | N |
| 22. | Identifying motor starters | 4.43 | 0.55 | 3.82 | 0.48 | 3.88 | 0.47 | 4.07 | 0.50 | N |
| 23. | Effectively utilizing starters in starting electric motors | 4.57 | 0.58 | 3.76 | 0.48 | 4.50 | 0.70 | 4.29 | 0.59 | N |
| 24. | Calculating motor current ratings in Amperes | 4.14 | 0.48 | 4.42 | 0.62 | 4.38 | 0.58 | 4.30 | 0.56 | N |
| 25. | Mounting electric motors safely | 3.59 | 0.40 | 3.89 | 0.50 | 4.48 | 0.60 | 3.97 | 0.50 | N |

| S/N | Item | | | | | | | | | Decision |
|-----|------|------|------|------|------|------|------|------|------|-----|
| 26. | Effectively carrying out star and delta connections | 3.51 | 0.39 | 4.05 | 0.53 | 4.29 | 0.56 | 3.92 | 0.49 | N |
| 27. | Operating multi-phase motors | 4.06 | 0.47 | 3.87 | 0.49 | 4.02 | 0.50 | 3.99 | 0.49 | N |
| 28. | Connecting motors in series | 3.76 | 0.42 | 4.08 | 0.54 | 4.25 | 0.56 | 4.01 | 0.51 | N |
| 29. | Connecting three-phase motors | 3.88 | 0.44 | 4.13 | 0.55 | 3.79 | 0.46 | 3.92 | 0.48 | N |
| 30. | Installing trunks of different sizes | 3.80 | 0.42 | 4.42 | 0.62 | 3.57 | 0.43 | 3.91 | 0.49 | N |
| 31. | Installing accessories | 4.37 | 0.53 | 4.47 | 0.63 | 4.45 | 0.60 | 4.43 | 0.59 | N |
| 32. | Joining PVC trunks | 3.98 | 0.46 | 4.24 | 0.57 | 4.50 | 0.61 | 4.23 | 0.55 | N |
| 33. | Installing earth continuity conductors | 4.00 | 0.46 | 4.24 | 0.57 | 4.48 | 0.60 | 4.22 | 0.54 | N |
| | | | | | | | | 4.03 | 0.51 | |

$\bar{x}_t$ = Mean of Teachers, $\bar{x}_w$ = Mean of Workshop Attendants, $\bar{x}_p$ = Mean of Parents, $\bar{x}_G$ = Grand mean, $\sigma_A$ = Average Standard Deviation, $\sigma_T$ = Standard Deviation of Teachers, $\sigma_p$ = Standard Deviation of Workshop Attendants, $\sigma_p$ = Standard Deviation of Parents. N= Needed

**Research Question 2:** What are the factors affecting practical skill acquisition by female students in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?

Analysis of data presented in Table 2 shows that the respondents agreed on almost all the items as factors affecting practical skill acquisition by female students of EIMW trade in technical colleges for achieving sustainable development goals with a grand mean score of 3.96 and standard deviation of 0.52 indicating that the respondents are close in their responses.

Table 2: Mean and Standard deviation of Teachers, Workshop Attendants and Parents on the factors affecting practical skill acquisition by female students in EIMW trade

| S/N | ITEMS | RESPONDENTS | | | | | | | | |
|-----|-------|------|------|------|------|------|------|------|------|-----|
| | | Nt = 49 | | Nw = 38 | | Np = 42 | | | | |
| | | $\bar{x}_t$ | $\sigma_t$ | $\bar{x}_w$ | $\sigma_w$ | $\bar{x}_p$ | $\sigma_p$ | $\bar{x}_G$ | $\sigma_A$ | Decision |
| 34. | Poor female students interest in electrical works | 4.18 | 0.49 | 3.92 | 0.50 | 4.43 | 0.59 | 4.19 | 0.53 | Agreed |
| 35. | Poor student Motivation from Parent | 4.05 | 0.54 | 4.11 | 0.54 | 4.33 | 0.57 | 4.16 | 0.55 | Agreed |
| 36. | Attitude of female students toward technical subject | 4.24 | 0.51 | 4.39 | 0.61 | 3.93 | 0.48 | 4.19 | 0.53 | Agreed |
| 37. | Teaching method | 3.22 | 0.38 | 4.11 | 0.54 | 4.55 | 0.62 | 3.91 | 0.51 | Agreed |
| 38. | Good library | 2.94 | 0.45 | 2.47 | 0.63 | 2.48 | 0.60 | 2.63 | 0.56 | Disagreed |
| 39. | Inadequate facilities | 4.24 | 0.51 | 4.55 | 0.66 | 4.21 | 0.54 | 4.33 | 0.57 | Agreed |
| 40. | Poor conducive environment for practical lesson | 4.10 | 0.48 | 4.61 | 0.67 | 3.95 | 0.48 | 4.20 | 0.54 | Agreed |
| 41. | Peer group | 4.31 | 0.52 | 4.05 | 0.53 | 4.19 | 0.53 | 4.19 | 0.53 | Agreed |
| 42. | Religious sanctions on women | 2.45 | 0.55 | 2.24 | 0.57 | 2.45 | 0.60 | 2.39 | 0.57 | Disagreed |

| | | $\bar{x}_T$ | $\sigma_T$ | $\bar{x}_w$ | $\sigma_P$ | $\bar{x}_p$ | $\sigma_P$ | $\bar{x}_G$ | $\sigma_A$ | Decision |
|---|---|---|---|---|---|---|---|---|---|---|
| 43. | Hazards involved in working with electricity | 4.39 | 0.54 | 4.13 | 0.55 | 4.19 | 0.53 | 4.25 | 0.54 | Agreed |
| 44. | Societal perception about electricity | 4.12 | 0.48 | 4.32 | 0.59 | 4.24 | 0.55 | 4.22 | 0.54 | Agreed |
| 45. | Unavailability of raw materials for practical activities | 4.37 | 0.53 | 4.32 | 0.59 | 3.88 | 0.47 | 4.19 | 0.53 | Agreed |
| 46. | Lack of qualified technical teachers | 4.29 | 0.51 | 4.21 | 0.57 | 3.93 | 0.47 | 4.15 | 0.52 | Agreed |
| 47. | Teachers negative attitude to the subject | 3.82 | 0.43 | 4.18 | 0.56 | 3.72 | 0.48 | 3.89 | 0.49 | Agreed |
| 48. | Allocation of a classroom without equipment and tools | 3.71 | 0.41 | 3.50 | 0.44 | 4.24 | 0.55 | 3.82 | 0.47 | Agreed |
| 49. | Cultural perceptions on women | 4.43 | 0.55 | 3.76 | 0.48 | 4.48 | 0.60 | 4.25 | 0.54 | Agreed |
| 50. | Lessons lack practical activities | 3.33 | 0.38 | 3.71 | 0.47 | 4.45 | 0.60 | 3.81 | 0.48 | Agreed |
| 51. | Poor societal attitude towards technical education. | 3.82 | 0.43 | 3.76 | 0.48 | 4.29 | 0.56 | 3.95 | 0.49 | Agreed |
| 52. | Lack of equipped laboratory/workshop | 3.96 | 0.45 | 3.92 | 0.50 | 4.00 | 0.49 | 3.96 | 0.48 | Agreed |
| 53. | Poor societal recognition of technical education | 4.37 | 0.53 | 3.67 | 0.41 | 3.93 | 0.48 | 3.99 | 0.47 | Agreed |
| 54. | Teachers discrimination on the activities allotted to the female | 4.12 | 0.48 | 4.13 | 0.55 | 4.19 | 0.53 | 4.15 | 0.52 | Agreed |
| 55. | Fear of electrical hazards | 4.48 | 0.56 | 4.03 | 0.53 | 4.33 | 0.57 | 4.30 | 0.55 | Agreed |
| 56. | Lack of fund for consumable items | 4.43 | 0.55 | 3.82 | 0.48 | 3.81 | 0.46 | 4.05 | 0.50 | Agreed |
| 57. | Poor supervision of female practical activities | 3.67 | 0.41 | 4.08 | 0.54 | 4.21 | 0.54 | 3.97 | 0.49 | Agreed |
| | | | | | | | | 3.96 | 0.52 | |

$\bar{x}_T$ = Mean of Teachers, $\bar{x}_w$ = Mean of Workshop Attendants, $\bar{x}_p$ = Mean of Parents, $\bar{x}_G$ = Grand mean, $\sigma_A$ = Average Standard Deviation, $\sigma_T$ = Standard Deviation of Teachers, $\sigma_P$ = Standard Deviation of Workshop Attendants, $\sigma_P$ = Standard Deviation of Parents.

**Research Question 3:** What are the strategies for improving female student's practical skill needed in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals?

Data presented in Table 3 indicates that the respondents agreed on almost all the strategies for improving female student's practical skill needed in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals with a grand mean score of 4.16 and standard deviation of 0.55.

Table 3: Mean and Standard deviation of Teachers, Workshop Attendants and Parents on the strategies for improving female students practical skill needed in EIMW trade

| S/N | ITEMS | RESPONDENTS | | | | | | | | Decision |
| | | Nt = 49 | | Nw = 38 | | Np = 42 | | | | |
| | | $\bar{x}_t$ | $\sigma_t$ | $\bar{x}_w$ | $\sigma_w$ | $\bar{x}_p$ | $\sigma_p$ | $\bar{x}_G$ | $\sigma_A$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| 58. | Employment of qualified teachers | 4.47 | 0.56 | 4.55 | 0.66 | 4.10 | 0.51 | 4.37 | 0.58 | Agreed |
| 59. | Posting of adequate number of electrical installation teachers to school | 4.31 | 0.65 | 4.13 | 0.55 | 4.31 | 0.56 | 4.26 | 0.59 | Agreed |
| 60. | Teacher should be model to student's skill acquisition | 3.90 | 0.44 | 4.26 | 0.58 | 4.17 | 0.53 | 4.09 | 0.52 | Agreed |
| 61. | Organization of Electrical installation work trade club aimed at promoting practical skills in female students | 4.02 | 0.46 | 4.18 | 0.56 | 4.21 | 0.54 | 4.13 | 0.52 | Agreed |
| 62. | Sensitization of students on importance of the subject | 3.90 | 0.44 | 4.11 | 0.54 | 3.83 | 0.46 | 3.94 | 0.48 | Agreed |
| 63. | Sufficient periods for lesson and practical | 4.22 | 0.50 | 4.26 | 0.58 | 4.26 | 0.55 | 4.25 | 0.54 | Agreed |
| 64. | Use of demonstration and project method of teaching | 4.37 | 0.53 | 4.24 | 0.57 | 4.24 | 0.55 | 4.29 | 0.55 | Agreed |
| 65. | Availability of laboratory equipment for practical | 4.31 | 0.52 | 4.29 | 0.59 | 4.19 | 0.53 | 4.26 | 0.55 | Agreed |
| 66. | Provision of adequate funds for consumables for practical | 4.51 | 0.57 | 4.18 | 0.56 | 4.46 | 0.61 | 4.40 | 0.58 | Agreed |
| 67. | Educating parents and make appeal at P.T.A | 4.47 | 0.56 | 4.10 | 0.53 | 4.50 | 0.61 | 4.37 | 0.57 | Agreed |
| 68. | Workshops should be sufficiently equipped and accessible by students | 4.43 | 0.55 | 4.55 | 0.66 | 4.25 | 0.56 | 4.41 | 0.59 | Agreed |
| 69. | Communities should be encouraged to participate in financing the technical colleges | 4.42 | 0.54 | 4.16 | 0.55 | 4.17 | 0.53 | 4.26 | 0.54 | Agreed |
| 70. | Industries should engage female students in field works | 4.39 | 0.54 | 4.05 | 0.53 | 4.45 | 0.60 | 4.31 | 0.56 | Agreed |
| 71. | Reliable source of electricity should be provided for practical activities | 4.57 | 0.58 | 4.29 | 0.59 | 3.97 | 0.56 | 4.29 | 0.58 | Agreed |
| 72. | Female students should be encouraged to participate during lesson | 3.63 | 0.40 | 4.45 | 0.63 | 4.26 | 0.55 | 4.08 | 0.53 | Agreed |
| 73 | Female students' exposure to motivational discussion periodically. | 3.69 | 0.41 | 4.39 | 0.61 | 4.26 | 0.55 | 4.09 | 0.52 | Agreed |
| 74. | Periodic reward for female outstanding performance | 4.43 | 0.55 | 4.55 | 0.66 | 4.26 | 0.55 | 4.41 | 0.58 | Agreed |

| | $\bar{x}_T$ | $\sigma_T$ | $\bar{x}_w$ | $\sigma_P$ | $\bar{x}_p$ | $\sigma_P$ | $\bar{x}_G$ | $\sigma_A$ | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 75. Drawing a clear cut line between religion and education by stakeholders | 2.43 | 0.55 | 2.32 | 0.59 | 2.45 | 0.60 | 2.40 | 0.58 | Disagreed |
| 76. Career guidance and counselling should be established | 4.47 | 0.56 | 4.11 | 0.54 | 4.26 | 0.55 | 4.29 | 0.55 | Agreed |
| 77. Legislating against obnoxious customs and practices which are detrimental to women's optimal functionality and wellbeing. | 4.57 | 0.58 | 4.24 | 0.57 | 4.31 | 0.56 | 4.39 | 0.57 | Agreed |
| | | | | | | | **4.16** | **0.55** | |

$\bar{x}_T$ = Mean of Teachers, $\bar{x}_w$ = Mean of Workshop Attendants, $\bar{x}_p$ = Mean of Parents, $\bar{x}_G$ = Grand mean, $\sigma_A$ = Average Standard Deviation, $\sigma_T$ = Standard Deviation of Teachers, $\sigma_P$ = Standard Deviation of Workshop Attendants, $\sigma_P$ = Standard Deviation of Parents.

**Hypothesis 1:** There is no significant difference between the mean responses of teachers, workshop attendants and parents on the practical skills needed by female students in EIMW trade in technical colleges for achieving sustainable development goals in Akwa Ibom state

The result in Table 4 reveals an F-ratio of 1.12 with a *p*-value of 0.32. Since the *p*-value is greater than the alpha level of the test ($p > .05$), the null hypothesis tested is accepted. This result shows that there is no significant difference in the mean responses of teachers, workshop attendants and parents on the practical skills needed by female students of EIMW trade in technical colleges for achieving sustainable development goals in Akwa Ibom state.

Table 4: Analysis of Variance (ANOVA) Test for comparing the Mean Scores of teachers, workshop attendants and parents on the practical skills needed by female students of EIMW trade

| Sources | df | SS | MS | α | F | p | Remark |
|---|---|---|---|---|---|---|---|
| Between Squares | 2 | 0.18 | 0.09 | | | | |
| | | | | 0.05 | 1.12 | 0.32 | Not Significant |
| Within Squares | 96 | 7.92 | 0.08 | | | | |
| Total | 98 | 8.10 | | | | | |

SS= Sum of squares, MS= Mean Squares, df = Degree of Freedom, α = level of significance, F = Observed F-ratio, *p* = Significance (1-way)

**Hypothesis 2:** There is no significant difference between the mean responses of teachers, workshop attendants and parents on the factors affecting practical skill acquisition by female students in EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals

The result on Table 5 reveals an F-ratio of 0.21 with a *p*-value of 0.80. Since the *p*-value is greater than the alpha level of the test ($p > .05$), the null hypothesis tested is accepted. Therefore, teachers, workshop attendants and parents do not differ significantly in their mean scores on factors affecting practical

skill acquisition by female students of EIMW trade in technical colleges of Akwa Ibom state for achieving sustainable development goals.

Table 5: Analysis of Variance (ANOVA) Test for Comparing the Mean Scores of teachers, workshop attendants and parents on the factors affecting practical skill acquisition by female students in EIMW trade

| Sources | df | SS | MS | α | F | p | Remark |
|---|---|---|---|---|---|---|---|
| Between Squares | 2 | 0.12 | 0.06 | | | | |
| | | | | 0.05 | 0.21 | 0.80 | Not Significant |
| Within Squares | 69 | 19.63 | 0.28 | | | | |
| Total | 71 | 19.75 | | | | | |

SS= Sum of squares, MS= Mean Squares, df = Degree of Freedom, α = level of significance, F = Observed F-ratio, *p* = Significance (1-way)

## Discussion of Findings

The major finding of this study according to the result and presentation of data indicated that:

1. Female students needed the following practical skills: accessories installation, calculate motor current ratings in Amperes, drawing in wires into conduits using fish wire, identifying electrical symbols, carrying out testing of polarity in an installation, identifying conduit work tools, etc.

2. The findings revealed that poor female students interest in electrical works, attitude of female students toward technical subject, hazards involved in working with electricity, cultural perceptions on women, fear of electrical hazards, unavailability of raw materials for practical activities, etc are among the factors affecting practical skill acquisition by female students in EIMW trade in technical colleges of Akwa Ibom state.

3. The findings revealed that employment of qualified teachers, educating parents and make appeal at P.T.A, provision of adequate funds for consumables for practical, workshops should be sufficiently equipped and accessible by students, reliable source of electricity should be provided for practical activities, periodic reward for female outstanding performance, Legislating against obnoxious customs and practices which are detrimental to women's optimal functionality and wellbeing among others are the strategies for improving female students practical skill needed in EIMW trade in technical colleges of Akwa Ibom state.

4. The findings revealed that there was no significant difference in the mean responses of teachers, workshop attendants and parents on the practical skills needed by female students in EIMW trade in technical colleges of Akwa Ibom state.

5. The findings revealed that there was no significant difference between the mean responses of teachers, workshop attendants and parents on the factors affecting practical skill acquisition by female students in EIMW trade in technical colleges of Akwa Ibom state.

Based on the findings of the study, female students needed a cluster of 33 practical skills to be able to function effectively in the society and the world of work. The finding is in agreement with Adebisi

(2015) suggesting that skill acquisition could help the learner to: cultivate a right attitude to work, have a good sense of duty and respect for the dignity of labor and be self-sufficient.

The findings of the study further revealed 22 out of 24 items as the factors affecting practical skill acquisition by female students of EIMW trade in technical colleges of Akwa Ibom state. Specifically, the respondents disagreed that good library and religious sanctions on women constitute the factors affecting practical skill acquisition by female students. This was in agreement with Okechukwu (2003) and Yanda (2006) that lack of appropriate instructional methods make practical activities ineffective and the products are ill-equipped for practical living in a dynamic society. Furthermore, the finding is also in agreement with that of Muhammed (2004) and Okeke (2005) who in their separate study revealed that Lack of equipped laboratory, Lack of qualified technical teachers, Cultural perceptions on women, Poor conducive environment for practical lesson, are some of the constraining factors affecting practical skill acquisition in TVET stressing that the process of teaching and learning without materials, equipment and tools related to the skills to be learnt is of little benefit to the learner.

The findings of the study revealed that the respondents agreed on 19 out of 20 ways that could be employed to enhance the practical skill acquisition of female students which include employment of qualified teachers, Educating parents and make appeal at P.T.A, Provision of adequate funds for consumables for practical, Workshops should be sufficiently equipped and accessible by students, Reliable source of electricity should be provided for practical activities, Periodic reward for female outstanding performance, Legislating against obnoxious customs and practices which are detrimental to women's optimal functionality and wellbeing among others are the strategies for improving female students practical skill needed in EIMW trade. This is in agreement with Kolo (2003) who stressed that practical lessons in equipped laboratory capture the student's attention for future utilization.

## Conclusion and Recommendations

The study presented areas of practical skills acquisition needed by female students in EIMW if the goals of sustainable development on quality education and gender equity is to be achieved in Nigeria. Furthermore, factors affecting the acquisition of practical skills by the females and strategies for enhancing the practical skill acquisition constituted the findings of this study. The findings on strategies will help supplement UNESCO's effort of integrating gender equality in and through national TVET systems and their support for innovative means that seeks to widen access and participation in TVET for vulnerable and disadvantaged groups like the females.

Based on the conclusions presented, the following actions are recommended with regard to the issues addressed by the research questions and hypotheses in this study:

1. Female students should be encouraged to acquire practical skills and practice without discrimination of any sort from the society and industries
2. Government should provide adequate and qualified teachers with good knowledge on practical skills to teach EIMW in technical colleges

3. Administrators and Government should provide an ideal laboratory for the teaching and learning of EIMW in technical colleges for female students
4. Electrical installation and maintenance work trade club should be established in the technical colleges for proper dissemination of information to female students
5. Parents should be involved in the administration of technical colleges in Akwa Ibom

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# Competency Needs of Operators of Technical Vocational Education and Training for Sustainable Development Goals

**Osianemo A. Omole**

Ahmadu Bello University Zaria, Nigeria

**Alfred S. Omole**

Federal College of Education (Technical), Gusau, Nigeria

## Abstract

This paper is a discourse on competency needs of operators of technical and vocational education and training TVET for Sustainable Development Goals (SDG). A well-coordinated TVET can provide people, and especially youth, with the knowledge, skills and competencies required for the jobs of today or tomorrow. The provision of relevant job skills can therefore be a robust means of empowering people to seize employment opportunities or equip them for self-employment. The 2020 - 2030 Agenda for (SDG) has set a number of ambitious targets under SDG 4 on quality education and SDG 8 on decent work and economic growth. It is on these premise that competency needs of TVET operators are explored. These includes among others, the use of need assessment theory for identifying and justifying needs, concept of competency, approaches for identifying competency needs, competency-based approach, job analysis, occupational analysis approach, modular approach, and task analysis approach. Some policy considerations for ensuring TVET contributions to sustainable development goals among such policies proffered is TVET Qualifications Framework for providing a long-term vision for TVET and ensuring forward-looking competences, including green skills and sustainable development competencies.

*Keywords:* Operators of TVET, Competency Needs, Sustainable Development Goals

## Introduction

Poor quality education, unemployment and insecurity in Nigeria is presently a nation-wide concern. Youths and graduates from various institutions looking for employment opportunity is on the increase daily. Nigeria's educational practices were tailored towards acquisition of white-collar job after graduation. These white-collar jobs are no longer there and have not also led the nation anywhere in terms of development. It is important to note that technical and vocational education and training (TVET) can be a means to an end. It can be a tool for securing employment and sustainable development in Nigeria.

Basically, the purpose of -TVET is to equip individuals with the technical and professional skills needed for socio-economic and industrial development of the country. This training can lead to self-employment and sustainable development. TVET is globally recognized for its role in preparing people for dynamic engagement in occupations of functional value and effective source of skilled workforce. The United Nations Educational Scientific and Cultural Organization (UNESCO) and the International Labour Organization (ILO) recommendation of 2000 on TVET for the 21st century define TVET as: an integral part of general education.

a) a means of preparing for occupational fields and effective participation in the world of work.

b) an aspect of lifelong learning and a preparation for responsible citizenship.

c) an instrument for promoting environmentally sound sustainable development.

d) a method of facilitating poverty alleviation (Oviawe et al., 2017).

Similarly, UNESCO (2009) defined TVET as all forms and aspects of education that are technical and vocational in nature, provided either in educational institutions or under their authority, by public or private establishment or through other forms of organized education, formal or non-formal, aiming to ensure that all members of the community have access to the pathways of lifelong learning. The above definitions of TVET implies that its goal is to fight ignorance and literacy, provide knowledge, develop skills and inculcate the attitudes that are required for entry and progressing in any occupation. To Kukoyi (2009), TVET is a planned programme of courses and learning experiences that begin with exploration of career options, support basic academic and life skills, and enable achievement of high academic standards, leadership and preparation for industry-defined work. This implies that TVET prepares learners for career that are based on manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation. Unlike general education, learning in TVET is centred on 'applied' as opposed to 'academic', practical as opposed to theory, and skills as opposed to knowledge. Accordingly, TVET today face huge demands globally due to high level of unemployment. Therefore, this discourse examined the competency needs of operators of TVET to ensure that training is in line with labour market needs and opportunities that can be explored for SDGs.

## Conceptual Clarifications

### Concept of Technical and Vocational Education and Training

Generally, education is an exercise that engages everybody. People either go through liberal, general or vocational education (Osuala, 2004). Vocational education is defined as any form of education whose primary purpose is to prepare persons for employment in recognized occupations (Okoro, 1993). Some authors always refer to the twin concepts Vocational-technical education in reference to education of skills or skill acquisition. The Nigerian National Policy on Education (2004) defines technical and vocational education as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related science and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. Immaculate (2005) opined that vocational and technical education are leaving experience

meant to be impacted to an individual systematically in order to get him/her adequately equipped for a good employment in a recognized occupation. Ojumba (2012) posited that vocational education encompasses fields of study such as agricultural education, fine and applied arts education, business education and vocational trades in soap making, hair dressing, computer training etc.

Based on the above definitions, vocational education is defined in this work as an educational training, which has been designed systematically to enable an individual acquire the basic knowledge, skills, abilities, and understanding needed for one's efficient performance in his/her chosen occupational carrier for self-reliance. Education is recognized as the bedrock of any meaningful development while vocational education is the cornerstone for any sustainable technological development programme.

## Concept of Sustainable Development Goals (SDGs)

The Millennium Development Goals (MDGs) timeline ended in 2015. Given the deficiency of many countries in achieving the set goals. Only 72 out of the 129 countries of the world achieved the MDG targets with some countries missing the target by a small margin. Various African countries including Nigeria were reported to have failed to achieve the MDGs targets. The international community through the United Nations and Heads of states of the 193 Member Nations, launched the Sustainable Development Goals (SDGs) as a new developmental strategy for 2030. The SDGs which is also referred to as Transforming our World: The 2030 Agenda for Sustainable Development (United Nations, 2015) or the Global Goals. According to United Nations, Sustainable development is the organizing principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystems services upon which the economy and society depends. The components that work together to produce sustainable development are environmental protection, social development, and economic development (United Nations, 2015). The SDGs is a set of 17 global goals with 169 targets and 230 indicators between them. The programme aims to guide policy and funding for the next 15 years, that is, 2015 to 2030 among all member nations (189 countries) and beginning with a significant undertaking to end poverty everywhere. The goals are built from the earlier Millennium Development Goals (MDGs) and include issues presented in the diagram below:

## Sustainable Development Goal 4: Quality Education

Despite all efforts by governments, civil society and the international community, the world has not achieved Education for All" (UNESCO, 2015). Of note is that millions of children are out of school and even more do not complete primary education. Inequality in education has increased with the poorest and most disadvantaged children being left out; the quality of education as well remained poor with millions of children leaving school without basic literacy and numeracy skills (UNESCO, 2015).

To address the non-attainment of targets by the Education for all (EFA) 2015 agenda, a declaration was made at the World Education Forum in Incheon, Republic of Korea that the World should "ensure inclusive and equitable quality education and promote lifelong learning for all by 2030". The Incheon Declaration marked the start of a new education agenda; which formed part of the seventeen (17) Sustainable Development Goals adopted by United Nations General Assembly (UNGAS), in September 2015, as a global agenda to drive global economic development. Goal four (4) of the 17 goals, is specific to education and a driving force through which all the goals could be achieved. SDG 4 commits to ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. The Goal will be realized through seven (7) targets and three (3) means of implementation that help to unpack SDG 4 into measurable targets. Table 1 below represents the logical framework of SDG 4 and its associated targets.

Table 1: SDG 4: Ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all.

| Means of Implementation | | |
|---|---|---|
| SDG 4a: Build and upgrade education facilities that are child, disability and gender sensitive | SDG 4b: Expand global scholarships to developing countries by 2020 | SDG 4c: Increase global supply of teachers in developing countries |
| Targets | | |
| SDG 4.1: By 2030, ensure that all boys and girls complete free equitable and quality primary and secondary education. | SDG 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills for employment, decent jobs and entrepreneurship. | SDG 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training. |
| SDG 4.2: By 2030, ensure that all boys and girls have access to quality early childhood development, care and pre-primary education. | | SDG 4.6: By 2030, ensure that all youth and substantially proportion of adults, both men and women achieve literacy and numeracy. |
| SDG 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university | | SDG 4.7: By 2030, ensure that all learners acquires knowledge and skills needed to promote sustainable development. |

## Competency needs of operators of TVET

Teachers and Instructors of TVET at all levels must be transformed from those who impart knowledge to those who facilitate learning. This transformation necessitates a change from the didactic rote learning heritage of TVET to an experiential and facilitative approach by teachers and instructors. Teaching and learning in TVET are being transformed from an emphasis upon procedure learning and manipulative practices to knowledge, understanding and application. There are many approaches that could be used in identifying technical competency needs of operators of TVET. These approaches are discussed below:

1. **Competency Based Approach:** For someone to perform an occupational activity effectively, certain level of competence is required. In the view of Olaitan (2003) competency is the knowledge, skills, attitudes and judgement generally required for the successful performance of a task. Judgement as used here means the use of many cognitive and affective skills in the process of making decisions. This approach they added can be used to train those capable of using knowledge, skills, attitudes and abilities in their various discipline. In their own view, Olaitan et al. (1999) stated that competency based approach is a process of designing and delivering strategies which help a student to acquire knowledge, skills and attitudes needed for successful entry into an employment and that it involves arranging skills, knowledge and attitude to be learnt in hierarchy of difficulty. They listed the following steps for effective use of the competency-based approach thus:
   a. Identification of all skills or jobs to be learnt.
   b. Determine what one would need to know and do in order to perform the identified tasks or jobs.
   c. Arrangement of tasks and jobs in appropriate courses.
   d. Organize knowledge, skills, required for each task or job in a hierarchy.
   e. Determine what one needs to know for mastery of each knowledge or skill.

In another view by Harris and Hodge (2012) competency-based approach is a structured approach to training and assessment that is directed toward achieving specific outcomes. It is about assisting individuals to acquire skills and knowledge with a view to performing a task to a specified standard under certain conditions. Competency based approach is very relevant to identification of knowledge, skills and attitude (competencies) in a programme designed for training individual that have no prior knowledge of the programme before entry.

2. **Job Analysis:** Job analysis approach as viewed by Carter (1999) is a process to identify and determine in detail the job duties requirement and the relative importance of these duties for a given job. The purpose of the job analysis is to identify specific job requirements and the environmental factors that could affect job performance. In his own opinion Olaitan (2003) stated that job analysis is a statement of all facts concerning a job which reveals its content and modifying factors which surround it. He added that job analysis is an attempt of listing all the knowledge skills and attitudes the learner must be taught it if he is to learn the complete trade. In their own contributions, Williams (1982) and Osuala (1999 as cited in Olaitan, 2003) described job analysis as detailed listing of duties, operations, and skills necessary to perform a clearly defined job. Such operations and skills are organized into logical sequence which may be used for teaching, employment or classification purposes. Olaitan et al., (1999) stated some steps in job analysis to include:

a.  Identify criteria of success on the job.

b.  Identify the traits that will predict the criteria for success.

c.  Identify what a worker does.

In another view Guide (as cited in Olaitan, 2003) stated that job analysis data may be collected from the incumbents through interviews or questionnaire and the product of the analysis is a description or specification of the job and not of the person. According to Guide, job analysis should collect information on Duties and Tasks, Environment, Tools and Equipment, Relationships and Job Requirements.

3.  **Occupational Analysis Approach:** Occupation according to Montagna (as cited in Olaitan, 2003) is a social role performed by adult members of a society that directly and indirectly yield social and financial consequences and that constitute a major focus in the life of an adult. In his own opinion, Taba (1982 as cited in Olaitan et al.,1999) stated that occupational analysis approach is concerned with listing of all the job tasks as well as the knowledge, skill and attitude, the learner must learn to enable him/her gain entry and function in an occupation. Thompson (cited in Olaitan, 2003) observed that there are different occupations. In some occupational areas, some technical competencies overlap. That is technical competencies of one occupation may be relevant to the technical competency of another. He stated that some occupations may require competent workers in planning, organizing, marketing such that the competent personnel who are the experts and along with other groups combine their efforts towards achieving stated objectives of the enterprises.

In his own opinion, Baker (as cited in Olaitan, 2003) explained that occupational approach is the identification of competencies which are common and to some extent necessary for initial employment in several related jobs and or occupations. He added that this approach may be of great use in curriculum of such occupation that involves entry level technical knowledge, skill, attitude and abilities, and the understanding of the profession or occupation intended. This approach therefore was not considered for the study because is an approach design to identify entry level skills, knowledge and attitude or even competencies. The technical teachers are already in the teaching occupation. They are not freshers.

4.  **Modular Approach:** Module according to Olaitan (2003) is a unit of measurement and a segment of an instructional program, which could serve as basis for day to day planning. Modular approach in the view of Sullivan (1995) implies the subdivision of the total required qualification or a given occupational profile into a set of employable competencies or skills, each of this must be delivered by one module. He stressed that breaking of curriculum content is done differently, where each unit is self-contained. Each unit is independent and contains all the theoretical knowledge, practical skills targeted by the unit.

This method of breaking up curriculum he added allows for each unit to be used in different contexts and to be changed modified or deleted without having to change the whole curriculum. He stated further that modularized instruction is competency-based instruction, i.e. assessment of trainee is done against a clearly defined task that one must perform under certain condition and up to certain standard regardless of time spent in training. A typical size of a module of one occupational qualification range according to him may contain 20 – 40 competencies. These have to be taken in 2-years of full training with 3 or 4 weeks per module. He therefore listed the following as content of a module:

    a.   Teaching/learning subject.

    b.   Instruction/learning method.

    c.   Teaching/learning objectives.

    d.   Required equipment.

    e.   Assessment method.

In the view of Olaitan (2003), modular approach to curriculum design is a unit of curriculum based on the development of entry-level competencies of students. They said that in the modular approach, the learners and their occupational goals form the basis for program planning. With the modular approach, the total curriculum of particular field is divided into units as modules. These are of equal lengths that will take approximated specified hours of instructional time to achieve with the average group of students.

One importance of modular approach is that the module lends itself to continual revision to meet the changing occupational demands of the learner due to advancement in technology. Here the module is meant to be able to incorporate new knowledge, practice and improvements in occupation. This approach found very useful for this study. Because all the competencies needs of teachers were identify from the carpentry and joinery module developed by NBTE for technical colleges in Nigeria.

5.   **Task Analysis Approach:** Task, according to Mager (1969 in Olaitan, 2003) is a set of logically related action required for the completion of a job. Task analysis is process of listing of all the steps involved in each task and the actual performance of task in action. He added that task analysis has two steps Olaitan (2003). First is task listing that is listing of all the steps in each task and second, the actual performance of the task in action.

      Olaitan et al. (1999) stated that task analysis is concerned with process of breaking work into smaller components and is derived from an occupational area. It is also the identification of classes of learning behaviour to be performed by an individual. The occupational area is broken down into tasks which are sub-divided into sub-tasks. Task analysis as further explained by them involves developing a list of tasks that are usually performed by practitioner in an occupation to accomplish a job. He further identified four major steps in making task to include:

    a.   Task identification

    b.   Task clarification

    c.   Task detailing

    d.   Task fixing or sequencing.

Task according to Mager (1969 in Olaitan, 2003) is a set of logically related action required for the completion of a job

## TVET for Sustainable Development

Sustainable TVET involves the renewal of individual skills, labour market skill requirements, and the transformation of the world of work. TVET influences directly the world of work and can help improve the incomes of poverty-stricken citizens, provide them with more choices in their lives and help empower individuals who would otherwise have been marginalized in the society.

TVET in the past has been seen as 'second-class education' compared to general academic education. TVET is now seen as the master key to poverty alleviation and social cohesion and a chance for countries to join in the league of development and globalization (UNESCO, 2005).

The UNESCO Bonn Declaration on Learning for Work, Citizenship and Sustainability (2004) stated that "since education is considered the key to effective development strategies, TVET then must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development". TVET has continuously helped improve the quality of human capital and has provided the necessary knowledge and skills for the development of one's capabilities towards the achievement of national competitiveness and sustainable development. TVET is also considered an indispensable instrument for improving labour mobility, adaptability and productivity, thus contributing to enhancing a nation's competitiveness and addressing labour market imbalances.

Thus, TVET and sustainable development are inevitably connected. TVET, has an essential role to play in raising awareness, and providing skills and values considered necessary to put sustainable development into practice. What is needed therefore, is a workforce with the necessary technological competencies and the capacity to provide for their wants and needs for a quality lifestyle and this can only be achieved through TVET institutions which are well equipped (Kerre, 2010).

TVET graduates will play an integral part in inventing and implementing practical solutions to problems like poverty, access to safe drinking water, environmental degradation and hygienic sanitation. They have roles to play in helping the society to respond to environmental and development issues as they work between nature, technology, economy and society.

TVET for sustainable development must incorporate considerations that will influence economy, society and ecology, commitments, and competencies are sort.

## Constraints in Vocational and Technical Education in achieving
## Sustainable Development in Nigeria

There are numerous major issues which emerge as constraints to vocational and technical education in achieving sustainable development in Nigeria. These constraints are:

- **Shortage of vocational and technical education teachers:** A teacher gap analysis was conducted as part of the Education Sector Status Review (2003). A total of 1058 teachers are needed for all the federal science and technical colleges to meet current demand. The analysis shows that all the colleges' lack adequate numbers of teachers, some do not have vocational teachers at all. With the overwhelming population of students in Nigeria schools, individualized instruction becomes very difficult especially during practical due to shortage of vocational education teachers.

- **Lack of adequate training facilities and equipment:** According to Oguejiofor (2014) most departments of vocational education in Nigeria tertiary institutions do not have sections for workshop or laboratory let alone usable facilities and where they exist, they are completely inadequate. Oduma (2007), posited that what is seen and referred to as vocational education workshop in various institutions today is an eye sore.

- **Gender Inequity:** With only 19% girls' enrolment rate during the academic year 2001-2002, female participation in Nigerian Technical Colleges is strikingly low. Many girls in technical colleges are enrolled in vocational programs that lead to professions traditionally held by women (catering, secretarial, home economics and others). Although national data are unavailable to determine the sex disaggregated enrolment trend by subject, it is estimated that girls are underrepresented in vocational and technical educational programs such as mechanics, electronics, woodwork, and

other technical areas. As the job market is requiring more and more technical and vocational skills, women can no longer afford to rely on the traditional narrow stream of professional options. Unless women have increased access to TVET that build diverse technical and vocational skills, their vulnerability to unemployment and poverty will be on the rise.

- **Low Quality Training Programs:** There is a serious mismatch between the qualifications of job seekers and the skill requirements of employers, mainly because vocational and technical schools teach skills not relevant to market needs. As most students learned very narrow skills on old machines at schools, they often find themselves unemployed or working as unskilled workers. Most machines in factories, especially those in joint venture companies are new to the students. Therefore, employers have to retrain them to operate these machines. If unemployment and underemployment pose a serious long-term development challenge to the nation, the shortage of skilled labour caused by these mismatches is an immediate problem to be tackled in order to bring about economic growth.

- **Poor funding of vocational and technical education:** Institutions in Nigeria are owned and funded by the Federal Government, State government and Private individual. In Nigeria, the allocation to education as a share of the GDP is quite minimal (Oguejiofor, 2014). Okeke and Eze (in Oguejiofor,2014), reported that enough fund has not been channelled to vocational and technical education which is a major problem plaguing the system. Similarly, Okeke (in Oguejiofor,2014) observed that poor funding cause's acute shortage of the necessary facilities needed for effective implementation of the programme.

- **Poor emphasis on the practical aspect of vocational and technical education:** Most tertiary institutions charged with the responsibility to teach vocational and technical education subjects in Nigeria today are poorly equipped with machines and relevant tools / equipment. Isyaku in Oguejiofor (2014) noted that vocational and technical education in Nigeria has been bedevilled by inadequate supply of facilities and equipment necessary for acquiring skills and competencies for self-employment.

- **Poor public impression and apathy to vocational and technical education:** Vocational and technical education in Nigeria has suffered a serious look down and obscurity in the past. Olufunke in Oguejiofor (2014) observed that parents prefer their children to study courses like pharmacy, medicine, law, accounting etc. because they regard vocational and technical education as a course for never do wells who could not secure admission into other disciplines.

## Conclusion and Recommendations

This discourse examined the competency needs of operators of TVET for SDGs 4 and 8 to ensure that training is in line with labour market needs and opportunities that can be explored. For Nigeria to achieve the implementation of the SDGs before 2030, the level of illiteracy must be drastically reduced, and the competency needs of operators of TVET should be largely implemented to promote the SDGs to make meaningful impact. To meet the SDGs agenda, the following recommendations are made:

- The government should partner with the vocational and technical educators to create awareness on the relevance of vocational education to individuals through workshops, seminars and conferences.

- Operators of TVET should be trained with a workable competency approach to ensure acquisition of relevant knowledge and skills.
- Government should provide enough funds by increasing allocation. Proprietors of private institutions should also seek for alternative means of fund through sponsorship and partnership with industries, NGOs and Philanthropists.
- To ensure sustainable development through vocational education, teachers preparation programmes should be supported and serving teachers adequately remunerated by the government.
- There should be adequate emphasis on practical aspect of vocational education to enable the recipients acquire skills and reduce the over dependence on government paid jobs.

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# Achieving Sustainable Development Goals 2016–2030 in Nigeria through Technical and Vocational Education and Training

**Aniekan Elijah Asukwo**

Modibbo Adama University of Technology, Nigeria

**Dauda Moses**

Modibbo Adama University of Technology, Nigeria

**Muhammed Adamu Yusuf**

Modibbo Adama University of Technology, Nigeria

**Isaac John Ibanga**

Akwa Ibom State Ministry of Education, Nigeria

## Abstract

To achieve Sustainable Development Goals (SDGs) 2016-2030 through Technical and Vocational Education and Training (TVET), the United Nations Educational, Scientific and Cultural Organization (UNESCO) has developed a strategy that aims to support the efforts of Member States to contribute to the transition towards sustainable societies and economies. This paper identified the three priority areas as developed by UNESCO which includes fostering youth employment and entrepreneurship; promoting equity and gender equality; and facilitating transition to green economies and sustainable societies. Furthermore, the paper discussed indigenous approaches to achieving the strategies in Nigeria. This paper recommends the need for TVET institutions to collaborate with the National Directorate of Employment (NDE) as regards placement of TVET trainees for Student Industrial Work Experience Scheme (SIWES); adopting of a dual system of education for TVET trainees; the need to introduce a sustainable financing scheme for female TVET trainees, especially those in the field of technical education in order to encourage more female enrolments; the need to come up with policies that will encourage female recruitments into TVET programmes; and the need for acquisition of green skills to form part of TVET activities and programmes in TVET institutions in Nigeria.

*Keywords:* Technical and Vocational Education and Training (TVET), Sustainable Development Goals (SDGs), Youth Employment, Sustainable Societies, Green Economies

## Introduction

Sustainable development can be referred to as any growth or directed change of a people or nation that can be maintained over time. IGI Global (2019) sees sustainable development as one that is geared towards the enhancement of individuals in the economy and which would also enhance the development of the nation and such development should be sustainable over time. While Adebola (2007) opined that sustainable development is a kind of development that can be initiated and managed properly in such a way as to give attention to continuity and preservation as people explore explicit available resources for the enlargement of their existence, Brown (2011) suggested that sustainable development may involve improvements in the quality of life for many but may necessitate a decrease in resource consumption. Furthermore, sustainable development is also seen as reduction in the levels of poverty, illiteracy, and unemployment and income inequality (Usoro et al., 2012).

In the past, workers were assured of a job for life, with full time employment, clear occupational roles and well established career paths. This is no longer the case as the knowledge dependent global economy is characterized by rapid changes in technology and related modes of work. Often, workers find themselves declared redundant and out of work. Porres et al. (2014) opines that Technical and Vocational Education and Training (TVET) today has the responsibility of re-skilling such workers to enable them find and get back to work. Apart from providing work related education, TVET is also a site for personal development and emancipation which is concerned with the development of those personal capacities that relate to realizing one's full potential with regard to paid or self-employment, occupational interests, and life goals outside of work. At the same time TVET also seeks to enable individuals overcome disadvantages due to circumstances of birth or prior educational experiences (Billet, 2011; McGrath, 2011; Porres et al., 2014).

United Nations Educational, Scientific and Cultural Organization (2016a) recommendation concerning TVET recognizes that it contributes towards the promotion of understanding and respect for human rights; inclusion and equity; gender equality and cultural diversity; and to the fostering of a desire and capacity for lifelong learning and learning to live together, all of which are essential to social and economic participation and to the realization of lasting peace, responsible citizenship, and sustainable development. Therefore, the neglect of TVET will hamper the sustainable development of any nation. This is corroborated by Dike (2009) who asserted that the neglect of technical education is socially and economically injurious because it robs any nation of the contributions her graduates would make on national development.

### Sustainable Development Goals 2016–2030

The Sustainable Development Goals (SDGs) were birthed in Rio de Janeiro in 2012 at the United Nations Conference on Sustainable Development, and adopted in New York in September 2015. The SDGs were a replacement to the Millennium Development Goals (MDGs) which started in 2000 with the objective to tackle the indignity of poverty (United Nations Development Programme, 2019a). The objective of the SDGs was to generate a set of global goals that meet the urgent environmental, political and economic challenges facing our world. Furthermore, the SDGs seek to realize inclusive and equitable

economic, social and environmental sustainable development. The SDGs can be realized with strong global partnerships and cooperation as the world is more interconnected than ever. Improving access to technology and knowledge is an important way to share ideas and foster innovation for sustainable growth and development (United Nations Development Programme, 2019b). Achieving the SDGs thus requires the partnership of governments, private sector, civil society and citizens alike. Increasing international cooperation is seen as vital to achieving each of the SDGs while developing multi-stakeholder partnerships to share knowledge, expertise, technology, and financial support is seen as critical to overall success of the SDGs.

The SDGs tell us what to do, but we must figure out how to do it. While some nations have called for new alliances that tap the innovation of businesses, civil society, cities and governments, others favour new models of using limited public money to draw in more private finance. While new alliances and models has it potential to achieve the SDGs, an improvement to the access of Technical Vocational Education and Training (TVET) is one vital avenue of achieving the SDGs, especially in a developing nation like Nigeria.

## The Concept of Technical and Vocational Education and Training

The United Nations Educational, Scientific and Cultural Organization (2006) informs that various terms have been used to describe elements of the field that are now conceived as comprising TVET and these include: Apprenticeship Training, Vocational Education, Technical Education, Technical-Vocational Education (TVE), Occupational Education (OE), Vocational Education and Training (VET), Professional and Vocational Education (PVE), Career and Technical Education (CTE), Workforce Education (WE), Workplace Education (WPE), etc. The UNESCO therefore defines TVET as that field that is concerned with the acquisition of knowledge and skills for the world of work.

The direct preparation for work was the original goal of TVET, and this has remain prominent in many developing nations even with the technological revolutions and innovations in science and technology of the 20th century that has made new domains of knowledge and new disciplines become important at all levels of education and training. Furthermore, the upward differentiation of TVET from first to second level and then to the third level of education has been an important development of the 20th century, thus setting the stage for the 21st century. Currently, TVET is focused increasingly upon preparing the knowledge of workers to meet the challenges posed during the transition from the Industrial Age to the Information Age, with its accompanying post-industrial human resource requirements and the changing world of work (United Nations Educational, Scientific and Cultural Organization, 2006).

The current National Policy on Education of the Federal Republic of Nigeria (2013) places great emphasis on Technical and Vocational Education as an integral part of national development strategy. The policy describes Technical and Vocational Education as a comprehensive term referring to those aspects of the education 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. As contained in the National Policy on Education (Federal Republic of Nigeria, 2013), the goals of TVET shall be to provide trained manpower in applied sciences, technology, and business particularly at craft, advance craft and technical

levels; to provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and giving training and imparting the necessary skills to individuals for self-reliance economically.

Technical and Vocational Education and Training serves multiple purposes. A key purpose is preparation of youth for work and this takes the form of learning and developing work related skills (both formal employment and self-employment) and mastery of underlying knowledge and scientific principles. Therefore, to support self-employment, TVET curricula often include entrepreneurship training (Billet, 2011).

## TVET and the SDGs 2016–2030

TVET is concerned with the acquisition of knowledge and skills for the world of work, and is expected to help youth and adults develop the skills they need for employment, decent work and entrepreneurship, promoting equitable, inclusive and sustainable economic growth, and supporting transitions to green economies and environmental sustainability. This is corroborated by Akerele (2007) who asserts that TVET is that aspect of education that exposes the learner to acquisition of demonstrable skills that could be transformed into economic benefits. According to Billet (2011), rapid technological changes demand that workers continuously update their knowledge and skills, thus it is now a common place to change vocations several times unlike the past where a job could be held for life. Therefore, TVET enables that flexibility of changing vocations in two ways. One is providing broad based technical knowledge and transversal skills on which different occupations can be based on. The second is providing continuing vocational training to workers.

According to the United Nations Development Programme (2019c), the belief that education is one of the most powerful and proven vehicles for sustainable development is reaffirmed by achieving inclusive and quality education for all. Furthermore, the UNDP affirms that one objective of the Sustainable Development Goal 4 is to provide equal access to affordable vocational training, to eliminate gender and wealth disparities, and achieve universal access to a quality higher education. Thus, the Sustainable Development Goals (SDGs) seek to realize inclusive and equitable economic, social and environmental sustainable development. The vision of the Sustainable Development Goal 4 calls on member states to ensure inclusive and equitable quality education, and promote lifelong learning opportunities for all. Specifically, it stresses the right to education, the principles of equity, inclusiveness, and quality and the importance of lifelong learning.

Education and training are central to the achievement of the 2030 Agenda for Sustainable Development. The United Nations Educational, Scientific and Cultural Organization (2016b) strategy for Technical and Vocational Education and Training (TVET) aims to support the efforts of Member States to contribute to the transition towards sustainable societies and economies. As encouraged by the United Nations Educational, Scientific and Cultural Organization (2016a) recommendation concerning TVET, Nigeria as a member state should adopt the UNESCO strategy, which has three priority areas, in order to enhance the relevance of their TVET systems. These three priority areas are:

1.  Fostering youth employment and entrepreneurship
2.  Promoting equity and gender equality
3.  Facilitating transition to green economies and sustainable societies

## Fostering youth employment and entrepreneurship in Nigeria

The issue of growing youth unemployment in Nigeria can be addressed through TVET by providing young people with access to quality skills training for the world of work and self-employment, and relevant incorporation of entrepreneurship skills. This can be achieved through a cross-sector collaboration and partnership between TVET institutions, government organizations, and industries. It is no news that the government of Nigeria has made laudable efforts in tackling youth unemployment through soft loans to Small and Medium Scale Enterprises (SMEs), and by youth empowerment/training from organizations like the National Directorate of Employment (NDE) and The Industrial Training Fund (ITF). All these efforts are geared mainly towards fostering entrepreneurship in Nigeria. Unfortunately, the outcome of these efforts seems not to bear on TVET in Nigeria.

There is rising number of businesses and agro-entrepreneurs but seem to have a declining number of youths with relevant technical skills. In other to have a sustained production of graduates with quality skills training for the world of work and self-employment, TVET institutions must synergize with the likes of NDE to maximize the efforts of ITF in the area of the mandatory six (6) months SIWES for tertiary institution undergraduates in Nigeria. The NDE is empowered to operate as an employment creation agency statutorily charged with the design and implementation of programmes to combat mass unemployment; the articulation of policies aimed at developing work programmes with labour intensive potentials; the obtaining and maintaining of a data bank on employment and vacancies in the country with a view to acting as a clearing house to link job seekers with vacancies in collaboration with other government agencies; and the implementation of other policies as may be laid down from time to time by the board established under section 3 of its enabling law. The NDE runs a Vocational Skills Development programme primarily concerned with bequeathing productive, functional and marketable skills to the unemployed. The skills acquisition intervention, introduced as a novel approach in combating mass unemployment, has remained a veritable tool and involves the use of NDE skills acquisition training centres across the country as well as workshops of master crafts-men and women operating in the informal sector as training outlets.  Where the informal sector operators are used, the trainees are attached as apprentices for periods long enough for them to acquire the necessary skills (ranging from 3 to 24 months depending on skill set). The NDE has a total of **76** skills centres in 26 states and the Federal Capital Territory (National Directorate of Employment, 2018).

The ITF on the other hand is charged with the responsibility of training low and middle level manpower for sustained industrialization. As part of its responsibilities, the ITF provides Direct Training, Vocational and Apprentice Training, Research and Consultancy Service, Reimbursement of up to 50% Levy paid by employers of labour registered with it, and administers the Students Industrial Work Experience Scheme (SIWES). SIWES is a skill acquisition programme solely designed to expose and prepare students of universities, polytechnics, colleges of technology and colleges of education for the Industrial work they may likely meet after graduation. It also affords students the opportunity to practice outside school what they have learnt theoretically and become familiar with handling tools, equipment and machineries that are not available in their institutions. Furthermore, the ITF provides sound Technical and Vocational Skills Training targeted at creating decent jobs in sufficient quantities to resolve the protracted problem of unemployment and reduce poverty; laying foundation for a robust and inclusive

growth within the Nigerian economy; and improving, on a sustainable basis, the well-being of all classes of Nigerians regardless of their personal circumstances and location (Industrial Training Fund, 2019).

UNESCO strategy of fostering youth employment and entrepreneurship in Nigeria can be achieved through collaboration and partnership between TVET institutions, NDE, and ITF. ITF has always handled the 6 months industrial training of undergraduates in tertiary institutions while the students have always chosen their preferred place of placement, but it has had its challenges especially to TVET undergraduates. Joseph et al. (2017) asserted that unwillingness of firms to accept students for industrial attachment, firms giving less attention to students while on industrial attachment, students ending up in irrelevant fields for industrial attachment, and lack of alternative place for industrial attachment in case of rejection are the most prevalent challenges faced by students during industrial attachment period. This has hampered the acquisition of relevant and requisite trade skills for self-reliance and sustainable development. This challenge can be tackled if the NDE is partnered as they have achieved numerous successes in vocational training, and also considering they have training centres spread across the country. The NDE also partners master crafts-men and women operating in the informal sector using their workshops as training outlets, therefore the students will end up in relevant fields where much attention will be given to them. Unlike previously where students apply for place of placement, the TVET institutions should now send the list of their students that will be embarking on SIWES to NDE who will handle the placement of the students in fields relevant to their vocation. The UNESCO on the other hand can then upon graduation of the students, issue out grants based on innovations in the student's field of vocation, thus fostering self-employment and entrepreneurship while also enhancing the relevance of TVET in Nigeria.

## Promoting equity and gender equality in Nigeria

Mainstreaming gender equality and promoting equity through TVET policies and programmes is one of UNESCO's main priorities. This is achieved through policy dialogue and programmes on TVET, to make sure that all youth and adults, including vulnerable and disadvantaged groups, have equal access to learning opportunities and skills development. UNESCO integrates gender equality in and through national TVET systems in different ways, such as through identification of promising international practices; development of guidelines; and by gender-sensitive evaluations of TVET programmes. UNESCO also supports innovative means to widen access and participation in TVET for vulnerable and disadvantaged groups.

Researches have shown that the female gender is one of the disadvantaged groups with respect to access and participation in TVET. The participation of females in TVET (especially technical education programmes) in Nigeria institutions is generally low and very poor when compared to enrolment in general education programmes (Adelakun et al. 2015; Aina, 2006). Okolocha (2006) noted that since the introduction of TVET into the Nigerian educational system some years ago, enrolment in TVET programme in Nigeria has remained low. This development according to Agwi and Puyate (2017) is more disturbing on female students' participation in TVET programme in Nigeria. Sadly, despite successive Nigerian governments' efforts directed at improving Technical Education at all levels to make technical Education attractive and sellable, gender gap still exist (Ayomike, 2014). Ukachukwu (2015)

also stated that this development has posed inherent danger to TVET (especially technology education) and national development.

Investing in the education of girls brings high returns in terms of breaking cycles of poverty and aiding economic growth — but it also improves children's and women's survival rates and health, delays child marriage and early pregnancies, empowers women both in the home and the workplace, and helps tackle climate change (Hodge, 2017). Therefore, if Nigeria is to achieve SDGs 2016-2030 through TVET, there is need to increase females' enrolment and recruitment into TVET programmes (especially Technical Education) with respect to promoting equity and gender equality. This can be achieved indigenously through three major ways:

1. Payment of study incentives to female TVET students. The Nigerian government needs to introduce a sustainable financing scheme for the female trainees in order to boost their interests in the programme. These incentives could be grants, financial aids, and full/part sponsorships. Special preference should be given to trainees in the field of technical education than those in vocational fields as the technical education programmes experience the least female enrolments in general.

2. Provision and favourable policies should be made to ensure that the best female TVET trainees are retained by the TVET institutions. This will promote the programme, attract more female interests, and also change the public perception on female enrolment into TVET. Parents will thus be encouraged to enrol their female wards into TVET programmes.

3. TVET professionals such as teachers and lecturers in collaboration with government and non-government organizations should organize awareness campaigns on the impact and benefits of female participation in TVET programmes for parents, girls, and members of the society. This awareness campaigns will also be an avenue to abreast them with financial schemes already in place for female trainees and also employment prospects for female TVET trainees upon graduation.

## Facilitating transition to green economies and sustainable societies in Nigeria

As a key feature, a green economy promotes investments in green sectors which either restores or maintains natural resources or increase efficiency in their use. These investments thus lead to the creation of jobs, generation of income and development of new markets but with less emissions, resource degradation and environmental pollution. Recently, the call for an urgent transition to green economies and climate resilient sustainable societies has been informed by climate changes and this has made UNESCO to support a smooth transition to green economies through appropriate strategies, cross-sector synergies and partnerships. This transition also connects TVET and the other Sustainable Development Goals within priority areas such as health, water, sustainable industrialisation, clean/renewable energy, agriculture, waste minimization, food safety, and security. Therefore, the need for the Nigerian government to strategically incorporate green skills into TVET activities and programmes to address new approaches to employment, consumption and production patterns for sustainable development cannot be overemphasized.

UNESCO-UNEVOC (2014) has advocated an approach for sustainable transformation of TVET institutions globally from a non-sustainable (Red) into a more sustainable (Green) one. Greening TVET or GTVET is an emerging concept emanating from UNESCO-UNEVOC as part of fulfilment of UN's

decade for Education for Sustainable Development (ESD), which has now translated into what is called Sustainable Development Goals (SDGs). According to Yalams (2019), all aspects of education as an industry revolves around three cardinal points. The people, the gains/profits of the system and the planet/environment (PPP). Majumdar (2011) describes GTVET as "a way of thinking in a sustainable manner as it relates to acquiring, consuming and disposing of utilities, proactive actions aimed at improving human wellbeing and social equity while significantly reducing environmental risk and ecological scarcities". The GTVET concept is aimed at transforming our campuses, changing societal attitudes, land spaces, people's culture and lifestyles towards becoming more environmentally friendly. It focuses on positively changing the direction of skills acquisition for real life work, job creation and national development (Moses, 2019). Majumdar (2011) identified key areas of reform for GTVET to impact on sustainable national development as: Greening the Campus, Greening the Curriculum, Greening the Research, Greening the Community, and Greening the Culture.

For GTVET to impact on sustainable national development in Nigeria, one area of reform that needs to be looked at is the area of a Green TVET Curriculum. The development, survival, wealth, and prosperity of a nation are linked to her curriculum content. This is because a curriculum is the totality of students' experiences in terms of instructional goals in an educational process and a Green TVET Curriculum would therefore contain those green attitudes, green knowledge, and green skills which the Nigerian government intends to impart her citizens with. The interaction of the students with the Green TVET Curriculum over time causes an alteration in their behaviour as a result of individual experiences, which would then reflect in activities and programmes in the immediate environment and the country at large. Additionally, the Nigerian government should come up with sustainable green policies to augment the effort of the green TVET curriculum. It is one thing to acquire green knowledge and skills; it is another thing to have policies that encourage the application of the acquired green knowledge and skills to solve the nation's green problems. The formulation and implementation of green policies to augment a reform in our green TVET curriculum will certainly facilitate a smooth transition to green economies and sustainable societies in Nigeria.

## Conclusion

Quality education is one priority area for actualizing SDGs 2016-2030, and TVET is the driving force. TVET is the cornerstone of achieving a sustainable national development and the government should do all that's within her capacity to augment UNESCO's strategy for TVET. Achieving sustainable economic development in Nigeria through TVET will require the collective and serious efforts and strong commitments of TVET trainees, educational institutions/training providers, employers and government. The approach to skill acquisition through SIWES is also found pertinent. Incorporating green skills into TVET activities and programmes is seen as a corner stone towards achieving sustainable developmental goals in Nigeria. However, as emphasis is placed on the acquisition of skills, gender disparity, and green economy, they are not to be seen in isolation as the only key factors sufficient to bringing economic development. Good governance, good economic policy implementation, and the

fight against corruption as well as provision of adequate infrastructural facilities and funding are focal to achieving the SDGs 2016-2030 in Nigeria.

## Recommendations

In order to achieve the SDGs 2016-2030 in Nigeria through TVET, the following recommendations are made:

1. There is an urgent need for TVET institutions to collaborate with the National Directorate of Employment (NDE) as regards placement of TVET trainees for SIWES. Considering the training centres and workshops of master craftsmen and women at the disposal of the NDE, the collaboration will help sustain the production of graduates with requisite and relevant trade skills for self-reliance or employment over time, thus fostering sustainable national development.

2. The Federal ministry of Education in collaboration with the TVET institutions should consider adopting a dual system of education for TVET trainees. This will allow learning take place in the TVET institutions and a privately owned (but properly registered) business or entrepreneurship agencies concurrently. The workshops of master craftsmen and women used by the NDE could also be considered.

3. There is need for the Government to introduce a sustainable financial scheme for female TVET trainees, especially those in the field of technical education. Grants, financial aids, and scholarships to the female trainees will encourage more female enrolments, attract more female interests in TVET programmes, and will shift considerable attention to TVET in general.

4. TVET institutions should come up with policies that will encourage female recruitments into its programmes. The more female trainers recruited, the easier it becomes to market the prospects of TVET to the female folks, thereby encouraging more female enrolments as the female trainers become role models to other girls with interests and also changing the perception and attitude of the public about female enrolment into TVET programmes.

5. The acquisition of green skills should form part of TVET activities and programmes, and the training process in TVET institutions (Green TVET Curriculum). The training should also be augmented by stringent government policy on green economy.

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# Hindrances to Skill Acquisition in Technical College Motor Vehicle Mechanics Work Program in Niger State, Nigeria.

**Abubakar M. Idris, Rufai Audu, Abdulkadir Mohammed and Abutu Francis**

Federal University of Technology Minna, Nigeria

## Abstract

This study surveyed the hindrances to skill acquisition in technical college Motor Vehicle Mechanics Work (MVMW) program in Niger State, Nigeria. Data were collected using a validated 21 item 5-point rating scale questionnaire (with a Cronbach Alpha reliability of 0.89) on a sample of 42 MVMW teachers and 355 MVMW students from all seven technical colleges situated in the state. Mean and standard deviation were used to answer the research questions while z-test statistics was used to test the null hypotheses at 0.05 level of significance. The hindrances to skill acquisition were broken into teacher related and student related factors. The study revealed among others that: the MVMW teachers lack adequate training facilities to teach required practical skills while the MVMW students are faced with acquiring obsolete skills that cannot enhance industrial development. The study recommends among others, the National Board for Technical Education and all stakeholders provide adequate practical skill acquisition facilities and periodically organize practical training in the work skills required by automobile industry to enhance industrial development in Nigeria.

*Keywords:* Skill acquisition, Skills, Technical College, Motor Vehicle Mechanics Work.

## Introduction

In Nigeria, technical college is one of the principal Technical and Vocational institution saddled with the responsibility for training craftsmen at the craft and advanced craft levels. In describing the goals of technical colleges, the Federal Republic of Nigeria (FRN) in her National Policy on Education (FRN, 2013) stated that, trainees completing technical college programmes shall have three options: secure employment either at the end of the whole programme or after completing one or more modules of employable skills; set up their own business and become self-employed and be able to employ others; pursue further education in advance craft/technical programme and in post-secondary (tertiary) technical institution such as Science and Technical colleges, polytechnics, college of technology, colleges of education, monotechnic and universities.

The technical colleges prepare students for the National Technical Certificate (NTC) and Advanced National Technical Certificate (ANTC) examinations leading to the production of craftsmen and master craftsmen. Training in various vocations or trade areas at technical colleges is carried out in Technical College (TC) one, two and three (TC I, II and III) and runs for a period of three years for the award of NTC and extra additional years for the award of ANTC depending on the trainee entry period and capability (NBTE, 2017). Technical colleges among other courses provide full training in technical trade areas as plumbing, carpentry and joinery, building, metal work and automobile mechanics, among others. The automobile mechanics programme is a core mechanical trade which has a major component as Motor Vehicle Mechanics Work.

Motor Vehicle Mechanics Work (MVMW) is one of the mechanical trade subjects offered at technical colleges in Nigeria. According to the National Board for Technical Education (NBTE) (2017), MVMW program is designed to provide craftsmen and master craftsmen with the competency to carry out preventive maintenance, general repair, and overhauling of various automobile units and components. These MVMW craftsmen and master craftsmen in the view of Nyapson (2015), should among others be able to diagnose problems, repair and service mechanical, electrical and electronic systems and components of automobile vehicles such as cars, buses and trucks. The philosophy of MVMW program as stated by NBTE (2017) is to produce competent automobile craftsmen for Nigeria's technological and industrial development and to conduct examinations leading to the award of the National Technical Certificate (NTC) and Advanced National Technical Certificate (ANTC) for automobile craftsmen and master craftsmen respectively. The NBTE (2017) stated that graduates of technical college automobile program may also wish to take the opportunity for further education.

The MVMW program is centered on skills acquisition among trainees during the training in school and during the industrial attachment period in automobile services, repairs and maintenance industries and related maintenance firms where industrial training is carried out to acquire skills. Skills denote expertise or ability developed in the course of training and experience demonstrated by an individual's ability to expertly use manual dexterity in a vocation. In the Motor Vehicle Mechanics trade, it includes not only trade and craft skills acquired through apprenticeship, but also includes technical knowledge, manual skills, high thinking skills and collaborative work skills needed to perform effectively in the automobile world of work or workplace. It is worthy to note that achieving the laudable objectives of MVMW program in technical college demand effective skill acquisition.

The Department for International Development (DFID, 2017) defined skill acquisition as the process or activity that is focused on acquiring the vocational and technical competences or dexterity needed for self-employment, job creation and self-reliance. Kenneth and Robert (2013) maintained that skill acquisition denotes activities geared towards acquiring practical competencies, know-how and attitudes necessary to perform in a trade or occupation in the labor market. To possess a skill is to demonstrate the right habit of acting, manipulating, thinking or behaving in a specific activity which has become so natural to the individual through repetitive practice.

Skill acquisition encompasses training and retraining activities in the industries and their economic effect on the welfare of a nation. If carried out in a sustainable manner, skill acquisition has the potential to help achieve a variety of objectives such as employment, poverty eradication, gender equality, labor

standards, and greater access to education and healthcare. The more developed a country's skill acquisition program capacity, the greater the potential for technologically development and economic growth. Despite Nigeria government's huge investment effort in technical colleges and the MVMW program, numerous issues are standing as hindrances to skill acquisition in the MVMW program which have hampered the expected practical skills and competencies possessed by technical college MVMW students in Nigeria. This study therefore investigates the factors that serve as hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria.

## Statement of the Research Problem

The Nigeria government skill acquisition effort through establishment of technical colleges and the running of MVMW program is supposed to enhance effective acquisition of technical skills in automobile diagnostics, services and repairs. This effort is expected to empower graduates of MVMW   with the required work skills for self-reliance and employment in various occupations in the industries to enhance industrial development in Nigeria. Despite several government efforts, many industries complained that over 65 percent of Nigeria MVMW graduates lack the required work skills for employment thereby hindering their access to contribute meaningfully to industrial development (Ngozi, 2014). It appears as if several MVMW graduates are still unemployed because they find it difficult to practice their trades upon graduation due to poor skills acquired during training in school. A clear indicator to support the existence of skill acquisition problems is the alarming rate of youth unemployment suffered by technical college graduates.

Odigiri and Ogwo (2013) revealed that the technical skills acquisition in Nigeria's technical colleges is bedeviled with numerous hindrances bothering on the MVMW teachers and trainees. The hindrances faced by technical college MVMW program in attaining effective skill acquisition in Nigeria could be the possible reason why most Nigeria automobile industries depend more on expatriate artisans, craftsmen and technicians who are highly paid and valued than their Nigeria counterpart. It is therefore imperative to carry out a survey of the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria.

## Purpose of the Study and Research Questions

The purpose of the study was to survey the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria. The specific objectives of the study identified:
1.   The teacher related factors that hinder skill acquisition in technical college MVMW program.
2.   The student related factors that hinder skill acquisition in technical college MVMW program.
The following research questions were raised to guide the study:
1.   What teacher related factors hinder skill acquisition in technical college MVMW program?
2,   What student related factors hinder skill acquisition in technical college MVMW program?

## Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance to guide in the conduct of the study.

**$H_{O1}$:** There is no significant difference in the mean responses of MVMW teacher and TC III MVMW students on the teacher related factors that hinder skill acquisition in technical college MVMW program.

**$H_{O2}$:** There is no significant difference in the mean responses of MVMW teacher and TC III MVMW students on the student related hindrances that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program.

## Methodology

The study adopted descriptive survey research design in which a 21-item questionnaire, structured on a five-point scale was used to collect data. The target population of the study comprised of all MVMW teachers and Year III technical college students in all the technical colleges situated in Niger State offering MVMW as a course. Year III technical college students were considered suitable for this study because they have undergone students industrial training at the end of Year II.  A total of 397 respondents consisting of 42 MVMW teachers and 355 MVMW students were used for the study. Respondents rated the questions Strongly Agree (5), Agree (4), Disagree (3), Strongly Disagree (2) and Undecided (1). The questionnaire was validated by three Lecturers from the Department of Industrial and Technology Education at Federal University of Technology, Minna. The reliability of the instrument pilot tested was found to be 0.89 using Cronbach Alpha reliability statistics. The research questions were answered using mean and standard deviation while z- test statistics was used to test the null hypotheses by item analysis at the 0.05 level of significance. The decision point or benchmark for agreeing or disagreeing to a item was pegged at 3.50 based on the researchers discretion. The cut-off point was set at 3.50 because the five-point scale used was not the conventional Likert scale.

The items with mean score of 3.50 and above were regarded as agreed while items with mean score below 3.50 were regarded as Disagreed. The items with 3.50 and above were regarded as Agreed because 3.50 is the benchmark set by the researchers for agreeing to an item since 5 points rating scale were used. Hypotheses were accepted when z- calculated (z-cal) value were less than the z- table (z-critical) value of ±1.96 while hypotheses were rejected when z- calculated were more than z- table value of ±1.96 based on a degree of freedom (df) of 395 ($N_1+N_2-2$). The z-test statistics was considered suitable because it is more appropriate when the sample size (n) is greater than 30 but maintains the same parametric assumptions, table usage and other conditions as in the application of t-test statistics (Uzoagulu, 2011).

## Results

**Research Question 1 and Hypothesis 1:** Table 1 shows that the respondents disagreed with item 10 as teachers related factors to skill acquisition but agreed with the remaining items presented as teachers related factors to skill acquisition in technical college MVMW program based on the decision that the mean rating of item 10 is below 3.50 while that of the remaining items are above the benchmark of 3.50. The item analysis of the hypothesis from Table 1 further reveals that all the hypothesis on the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is upheld. The 11 items had their standard deviation less than 1.96 showing that the respondents were not too far from the mean and were close to one another in their responses.

Table 1: Mean, Standard Deviation and z-test analysis of respondents on the teacher related factors that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program

| S/N | ITEM STATEMENT | $X_1$ | $SD_1$ | $X_2$ | $SD_2$ | $X_A$ | z-cal | Rem |
|---|---|---|---|---|---|---|---|---|
| 1 | Inadequate practical training given to MVMW teachers affects the practical training of trainees. | 3.51 | 1.2 | 3.53 | 1.23 | 3.52 | 0.67 | A & AC |
| 2 | Lack of industrial attachment for upgrading MVMW teachers' skills affects teaching of practical skills. | 3.75 | 0.55 | 3.26 | 0.74 | 3.51 | 0.81 | A & AC |
| 3 | Poor remuneration & lack of motivation discourage MVMW teachers from workshop practice. | 3.78 | 0.65 | 3.21 | 0.85 | 3.50 | 0.74 | A & AC |
| 4 | Inappropriate teaching methods affect practical skill acquisition. | 3.40 | 1.23 | 3.83 | 1.11 | 3.61 | 0.75 | A & AC |
| 5 | Inability to control large class size during practical skill training. | 3.10 | 0.12 | 3.92 | 0.54 | 3.51 | 0.54 | A & AC |
| 6 | MVMW teachers find it difficult to teach skills in the absence of adequate modern training facilities. | 3.45 | 1.43 | 3.65 | 0.75 | 3.55 | 1.43 | A & AC |
| 7 | Too much emphasis on theoretical aspect of MVMW against practice during instructional delivery. | 4.14 | 0.36 | 3.91 | 0.43 | 4.03 | 1.34 | A & AC |
| 8 | Poor attitude of MVMW teachers towards improvisation of training equipment. | 4.32 | 1.21 | 3.56 | 1.32 | 3.94 | 0.38 | A & AC |
| 9 | Poor professional, personal & public image accorded to MVMW teachers in the society. | 3.61 | 0.46 | 3.49 | 1.12 | 3.55 | 0.57 | A & AC |
| 10 | Absence of in-service program for continual advancement of MVMW teachers' education. | 3.21 | 0.78 | 3.11 | 0.89 | 3.16 | 1.57 | D & AC |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | Erratic electric power supply to power training tools & machines. | 3.14 | 0.36 | 2.91 | 0.43 | 3.03 | 1.34 | A & AC |

**Key:** Rem=Remark; A=Agreed; D=Disagreed; AC=Accepted; $\overline{x}_1$=Mean of MVMW teachers; $\overline{x}_2$= Mean of MVMW students; $\overline{x}_A$ =Average mean;SD$_1$=Standard deviation of MVMW teachers; SD$_2$= Standard deviation of MVMW students; z-cal =z-test calculated, z- table (z-critical) value = ±1.96.

**Research Question 2 and Hypothesis 2:** Table 2 reveals that the respondents agreed with all the items presented as students related factors to skill acquisition in technical college MVMW program based on the decision that the mean rating of all the items are above the benchmark of 3.50. The item analysis of the hypothesis from Table 2 further reveals that all the hypothesis on the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is accepted or upheld. The 10 items had their standard deviation less than 1.96 showing that the respondents were not too far from the mean and were close to one another in their responses.

Table 2: Mean, Standard Deviation and z-test analysis of respondents on the student related factors that hinder skill acquisition in technical college Motor Vehicle Mechanics Work program.

| S/N | ITEM STATEMENT | X$_1$ | SD$_1$ | X$_2$ | SD$_2$ | X$_A$ | z-cal | Rem |
|---|---|---|---|---|---|---|---|---|
| 1 | Difficulty in securing industrial attachment in appropriate industry. | 4.09 | 0.36 | 4.10 | 0.70 | 4.10 | 1.21 | A & AC |
| 2 | Negligence of industries towards accepting students for industrial attachment. | 3.70 | 1.31 | 3.33 | 0.65 | 3.52 | 1.30 | A & AC |
| 3 | High priority accorded to general education by the society over MVMW program demoralizes trainees. | 3.30 | 0.83 | 3.81 | 1.27 | 3.56 | 0.60 | A & AC |
| 4 | Haphazard sequence of practical training. | 4.28 | 0.32 | 4.05 | 0.81 | 4.17 | 0.80 | A & AC |
| 5 | Non-payment of stipend to students in training. | 4.34 | 1.20 | 3.47 | 0.72 | 3.90 | 0.69 | A & AC |
| 6 | Difficulty in purchasing information & communication technology devices needed for learning skills. | 3.50 | 1.39 | 3.06 | 0.63 | 3.78 | 0.57 | A & AC |
| 7 | Inconsistencies in the financial settlement scheme for MVMW graduates willing to practice their trades. | 3.29 | 1.29 | 3.77 | 0.74 | 3.53 | 0.71 | A & AC |
| 8 | The societal view that MVMW program is for unintelligence & under achievers reduces students' interest. | 4.10 | 0.75 | 3.71 | 0.11 | 3.91 | 1.48 | A & AC |
| 9 | The availability of obsolete training facilities leads to acquisition of outdated skills that are irrelevant to industries. | 4.20 | 1.30 | 4.01 | 0.64 | 4.11 | 1.42 | A & AC |
| 10 | Students' laziness & lack of focus on skill acquisition on a particular trade. | 4.41 | 0.45 | 4.36 | 0.81 | 4.39 | 0.68 | A & AC |

## Summary of Results

Based on the data collected and analyzed, the following findings emerged:

1. The teacher related factors that hinder skill acquisition in technical college MVMW program includes inadequate practical training given to teachers, lack of industrial attachment for upgrading MVMW teachers' skills, poor teacher remuneration and lack of motivation towards workshop practice, inappropriate teaching methods, large class size, inadequate modern training facilities, poor attitude of MVMW teachers towards improvisation, erratic electric power supply, among others. The respondents disagreed to the absence of in-service program for continual advancement of MVMW teachers' education.

2. The student related factors that hinder skill acquisition in technical college MVMW program includes difficulty in securing industrial attachment in appropriate industry, poor societal attitude towards MVMW program, haphazard sequence of practical lesson, difficulty in purchasing information & communication technology (ICT) devices needed for learning skills, non-payment of stipend to students in training, inconsistencies in the financial settlement scheme for MVMW graduate willing to practice their trade, laziness & lack of focus on skill acquisition on a particular trade, among others.

3. There is no significant difference between mean responses of the respondents on the teacher related factors that act as hindrance to skill acquisition in technical college MVMW program.

4. There is no significant difference between mean responses of the respondents on the student related factors that act as hindrance to skill acquisition in technical college MVMW program.

## Discussion of Findings

The findings on the teacher related factors that hinder skill acquisition in technical college MVMW program revealed that over 90% of the listed items were found to be among the teacher related factors to skill acquisition in technical college MVMW program. The study also revealed that absence of in-service program in technical colleges is not a factor related to skill acquisition, as respondents' responses imply that there is in-service program for continual advancement of MVMW teachers. The findings of the study is similar to the findings of Ogwo (2004) who carried out a study on skills development and found out that, most technical college classrooms and vocational training centers in Nigeria are overcrowded with trainees who find it difficult to understand practical sequence due to the pressure involve in learning practical skills.

The issue of large class size as a factor that hinder skill acquisition in technical college MVMW program was buttressed by Nyapson (2015), who lamented on the serious hindrance faced by several technical college teachers in teaching overcrowded classes. It is in recognition of the hindrance and negative effect of overcrowding or large class size in technical college programs that the Federal Republic of Nigeria in her National Policy on Education (FRN, 2013) stated that, for effective participation of students in practical work, the teacher students' ratio shall be kept at 1:20. This ratio is very difficult to adhere to in Nigeria technical colleges.

Similarly, Aghenta (2009) in a study on methods of teaching vocational subjects in Nigerian schools, found out that the overcrowding results from large class size in TVET institutions and training centers and is the major reason while instructors use inappropriate teaching methods which result in inculcating in the trainees, trial and error method of solving practical problems. Therefore, the technical graduates upon graduation finds it difficult to gain employment in the industries because the trial and error method is no longer needed by the industries due technological devices currently in use to enhance problem solving inform of fault diagnosis before repairs in modern motor vehicles.

Though there is in-service program for continual advancement of technical college MVMW teachers, the factors resulting from inadequate practical training given to them and lack of industrial attachment for upgrading MVMW teachers and master trainers' practical skills still need to be addressed. In line with this,  Odigiri and Ogwo (2013) in a study on technical skills needs of technical college teachers found out that, no educational program can rise above the quality of its teachers  and no teacher can teach a practical skill which he or she does not possess. Therefore, there is need to regularly update the teacher training curriculum every three years and emphasize more practical content to cope with new innovations in motor vehicle technology.

The findings on the student related factors that hinder skill acquisition in technical college MVMW program revealed that 100 % of the items listed were found to be among the student related factors to skill acquisition in technical college MVMW program. Corroborating the haphazard sequence of practical skills training, Igwe et al. (2017) in a study on Nigeria technical colleges found out that, the training provided by the technical colleges falls below modern training procedures. Furthermore, they stated that the training is devoid of formal orientation and lacks strict adherence to curriculum content for practical lessons. What is taught to trainees depends on the job or maintenance problem at hand. The mode of training and instruction is mostly by observation, practice, trial and error method. Therefore, trainees upon graduation suffer unemployment, underemployment and find it difficult to adapt in modern industrial work environment where standardized training procedures are adopted. The difficulty of students in securing industrial attachment in appropriate industry as well as the negligence of industries towards accepting trainees for industrial attachment is currently a serious challenge that affects serves as factor which hinders to skill acquisition in Nigeria technical college programs.

To buttress the factors resulting from difficulty of students in securing industrial attachment in appropriate industry, Olusegun (2010) conducted a study on effectiveness of Student Industrial Work-Experience Scheme (SIWES) and found out that, some students find it difficult to secure appropriate industry for industrial attachment because most students are searching for industries that pay students on training. Some students that are accepted for attachment in an appropriate industry, even during training they disturb the industrial management to pay them salary while on attachment. Similarly, Ogbuanya et al. (2010), stated that the desire by students to get paid while on industrial attachment or training has made many industries to develop lukewarm attitude and negligence towards accepting them for industrial attachment, thereby hindering avenue for skills acquisition needed for industrial development in Nigeria.  The study found no significant difference in the mean ratings of the responses of the respondents on the hindrances to skill acquisition in technical college MVMW program in Niger State, Nigeria. Hence, the opinions of the respondents did not differ in majority of the items identified. Therefore, the null hypotheses for the study were upheld (accepted).

## Conclusion and Recommendations

Based on the findings of the study, it was concluded that the factors that serves as hindrances to skill acquisition in technical college MVMW program in Niger State are numerous and bothers more on teacher related hindrances as well as students related hindrances. If the Nigeria technical college MVMW program is to gain relevance, achieve its objectives and produce technical manpower to promote industrial development, self-reliance and employment generation, then there is need for Nigeria government at various levels, industries as well as other stakeholders to intensify effort to find solution to the factors that serves as hindrances to skills acquisition in technical college MVMW program in Niger State, Nigeria.

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

1.  The National Board for Technical Education should organize training workshop to update MVMW teachers' practical skills and pedagogical competence needed to effectively teach practical skills.
2.  The head of the Science and Technical School Board should give orientation to the MVMW students on the relevance of MVMW program to industrial development, self-reliance, employment generation and wealth creation.
3.  Technical colleges should make efforts to generate fund internally through lunching and appeal fund cards from time to time to enable them buy modern training facilities and consumables for practicing skills acquisition.
4.  Supervisors from the Science and Technical School Board should give proper supervision, monitoring and standardization of technical college program implementation as well as restructuring MVMW program content to reflect current needs of the automobile industries.

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# Youths' attitude towards inclusive training in vocational and technical education for sustainable entrepreneurship in Ondo State

**Oluwafolakemi A. Olaniyan, Comfort A. Akinfolarin & Taiwo G. Olulowo**
Adekunle Ajasin University, Nigeria

## Abstract

For many decades, several interventions have been made by Nigerian government to reduce poverty, unemployment, rural-urban migration and youth restiveness. However, the efficacy of these interventions is yet to be felt as Nigeria is yet to overcome the related challenges. Against this backdrop, this study sought to determine the relevance of inclusive training in vocational and technical education (VTE) for promoting sustainable youth empowerment. The population of the study comprised all the youths in Ondo State. A multi-stage sampling technique was used in selecting a total of 150 respondents for the study. Descriptive research design of the survey type was adopted in the study. Primary data were collected from the respondents using structured questionnaire. Findings revealed that the occupational status and monthly income of the respondents have significant relationship with the attitude of the respondents towards inclusive training in VTE ($x^2$=0.024 and r=0.019, p<0.05 respectively). Similarly, a significant relationship existed between the constraints to training in VTE and the attitude of the respondents towards opting for vocations in VTE ($x^2$ =56.650, p<0.05). It is therefore recommended that the constraints identified be tackled to enhance the potentials of VTE for sustainable youth empowerment in entrepreneurial skills.

*Keywords:* Inclusive Training, Vocational and Technical Education, Sustainable, Entrepreneurship

## Introduction

Vocational and Technical Education has been identified as the paradigm shift in the educational, economic and technological advancement of the developing nations of the world especially Nigeria. As a component of the general and non-formal education, it deals with the training, acquisition and utilization of relevant skills for sustainable individual and national development. Vocational and Technical Education is that type of education which is targeted at preparation of persons for self employment and self reliance. The Federal Republic of Nigeria (2014) submitted that Vocational and Technical Ed-

ucation is targeted at acquisition of skills and techniques in chosen occupation or profession for an individual to earn a living. Similarly, Momoh (2012) posited that technical and vocational education refers to series of controlled and organized experiences arranged to prepare a person to carry on successfully any useful occupation or profession. Evidently, technical and vocational education is any kind of education which has the main purpose of preparing one for employment in recognized occupation. Consequently, in developing countries of the world such as Nigeria, technical and vocational education is regarded as the pivot point in realising the ultimate aim of functional education that can facilitate self reliance and productivity since the usual "chalk and talk" educational system is no more relevant in contemporary time.

This therefore calls for collaborative and concerted effort of the teachers, learners and all stakeholders in vocational and technical education in making it a more practical oriented discipline rather than theoretical. It should also be anchored on some factors that can promote meaningful and life-long education. According to the Federal Ministry of Education Blueprint and Master plan (2001-2010) on Vocational and Technical Education development in Nigeria, the objectives of VTE are to:

1. produce skilled technical workforce necessary to restore, re-vitalize, energize, operate and sustain the national economy and substantially reduce unemployment.
2. provide vocational and technical education that is broad based in nature, to accommodate all at all periods of life without discrimination or bias on the grounds of sex, religion, tenets and aptitude, physical disabilities or culture, religion or ideology.
3. reform the content of vocational and technical education to make it more responsive to socio-economic needs of the country.
4. serves as a means of national defense against poverty brought by lack of job skills.
5. harmonize and interrelate with the industries and the labor market in terms of resources for training as well as occupational and production standard.
6. raise and sustain a generation of job creators rather than job seekers.
7. enhance access to vocational and technical education programmes at all levels of the educational system; and
8. ensure equity of access, participation and completion rates.

Corroborating this, the National Policy on Education (2014) affirmed that the specific objectives of VTE are to:

> instil the right technological literacy and skills in the students; help in developing positive attitudes and habits for work; expose students to career awareness by exploring usable options in the world of work; stimulate creativity; equip students with the needed skills for sustainable livelihood; provide adequate technological orientation and basic skills in preparedness for advanced professional education and training; provide orientation, basic skills, competencies, and occupational abilities for those willing to establish entrepreneurship to produce saleable or services desired by the public.

Entrepreneurship, according to Oleabhiele et al. (2012), is the willingness and ability of an individual to seek investment opportunities in an area and be able to establish and run an enterprise successfully

based on identified opportunities. Based on this, vocational and technical education if properly harnessed can promote the acquisition of entrepreneurial skills that are needed in reducing unemployment, youth restiveness and social unrest and this will ensure economic growth and development.

## Statement of Problem

Over the years, several attempts have been made by successive governments in Nigeria to empower the youths, reduce unemployment and boost the economy. Some of the interventions made by government among others include schemes and initiatives such as: Farm Settlement Scheme (FSC) of 1960s, Operation Feed the Nation (OFN) of 1976, Youth Empowerment Scheme (YES), Rural Infrastructural Development Scheme(RIDS), Natural Resources Development and Conservation Scheme(NRDCS), Youth Enterprise With Innovation in Nigeria(YOU-WIN), Subsidy Re-investment and Empowerment Program (SURE-P) and recently the N-power which is a social investment program designed to alleviate poverty among the populace by the General Muhammadu Buhari led administration. However, despite all these laudable programmes, Nigeria still battles the problem of unemployment, youth restiveness and rural urban migration as an overwhelming number of Nigerian youths are still as disempowered and disillusioned as ever (Falola, 2017). According to Ayinde and Torimiro (2014), hunger and poverty still ravage the country with the attendant migration of energetic young adults to major cities in search of white-collar jobs, outbreak of epidemic and high level of youth restiveness.

To this end, inclusive training and empowerment of the young folk in VTE could serve as an indispensable tool for solving the problems of unemployment, youth restiveness and social vices among the youths.

## Objectives of the Study

The main objective of this study was to determine youths' attitude towards inclusive training in VTE for promoting sustainable entrepreneurship. The specific objectives are to:
1. identify the socio-economic characteristics of the respondents.
2. characterise the possible areas of inclusive training in VTE for sustainable entrepreneurship.
3. ascertain respondents' attitude towards inclusive training in VTE; and
4. indicate the possible constraints to inclusive training for sustainable entrepreneurship.

### Research Hypotheses

The hypotheses were stated in the null form as:

Ho$_1$: There is no significant relationship between the socio-economic characteristics of the respondents and their attitude towards possible areas of training in VTE for Sustainable entrepreneurship.

Ho$_2$: There is no significant relationship between the constraints to training in VTE and the attitude of the youths towards the possible areas of inclusive training in VTE for sustainable entrepreneurship.

## Methods

The study employed descriptive research design of the survey type. The population of the study comprised all the youths in the study area. A multi-stage sampling technique was used to select respondents for this study. At the first stage, three local government areas were selected using simple random sampling technique. The second stage involved the systematic selection of two communities per local Government to give a total of six communities. At the third stage, twenty-five (25) youths were purposively selected from each of the selected communities based on their categorisation as youths (18-35 years) and awareness of the prospects of vocational and technical education in promoting entrepreneurial skills. Therefore, a total sample size of one hundred and fifty respondents was selected for the study.

## Results and Discussion

Table 1 shows that many of the respondents (58.7 %) were male, 40.0% of the respondents had tertiary education, 49.3% were self employed and earned a monthly income of less than 20,000 NGN (52 USD). These show the level of poverty in the country. According to Human Development Report (2018), Nigeria is one of the poorest among the poor countries of the world ranked at 157 out of 189. Its Human Development Index (HDI) value of 0.532 and has a life expectancy of 54 years for females, 53 years for males. In addition, it has a literacy rate of 44%. Its 70% rural population earn less than $2 (US dollars) per day. This situation implies that the prospects inherent in VTE should further be harnessed to promote sustainable entrepreneurship in the country.

Table 1: Distribution of respondents based on their socio-economic characteristics

| Socio-economic characteristics | Frequency | Percentage |
|---|---|---|
| i)   Sex | | |
| Male | 88 | 58.7 |
| Female | 62 | 41.3 |
| Total | 150 | 100 |
| ii)  Educational attainment | | |
| No formal education | 1 | .7 |
| Adult literacy | 22 | 14.7 |
| Basic education | 30 | 20.0 |
| Senior secondary education | 30 | 20.0 |
| Tertiary education | 67 | 40.0 |
| Total | 150 | 100 |
| iii) Occupational status | | |
| Self employed | 74 | 49.3 |
| Civil servant | 32 | 21.3 |

| | | |
|---|---|---|
| Unemployed | 44 | 29.3 |
| Total | 150 | 100 |
| *iv) Monthly income | | |
| no income | 32 | 21.2 |
| <20,000 NGN (52 USD) | 62 | 41.3 |
| 21,000 NGN–40,000 NGN | 29 | 19.3 |
| 41,000 NGN–60,000 NGN | 16 | 10.7 |
| 60,000 NGN & above | 11 | 7.3 |
| Total | 150 | 100 |

Source: Field Survey, 2019 n=150

* Exchange rate: 1 Nigerian naira = 0.0026 United States Dollar (November 4, 2020)

 Source: www.exhangerates.org.uk

**Areas for inclusive training in VTE for sustainable entrepreneurship**

It could be inferred from Table 2 that inclusive training in the various areas of VTE is low with 30.8%, 27.3%, 24.5%, 9.4% and 8% for trades and industrial technical education, vocational agric, vocational home economics, distributive education and vocational business and office education respectively. The implication is that more training in VTE should be organized by professionals and youths should be encouraged to undergo more inclusive training in the various areas of VTE. This is required to improve the effectiveness, efficiency and safety of the economy for a greater economic development (Okoye & Ogunleye, 2015).

Table 2: Areas for inclusive training in VTE for sustainable entrepreneurship

| Areas of inclusive training in VTE | Frequency | Percentage |
|---|---|---|
| i)   Vocational Agriculture and forestry education | | |
| Livestock | 8 | 5.3 |
| Processing of farm produce | 9 | 6.0 |
| Agricultural supplies &distribution experts | 4 | 2.7 |
| Crop& animal breeding expert | 1 | .7 |
| Soil management, farm produce and specie expert | 1 | .7 |
| Farm equipment & machineries expert | 2 | 1.3 |
| landscape & horticultural design expert | 3 | 2.0 |
| Agric extension services/ farm management expert | 2 | 1.3 |
| Forest resource management consultancy | 3 | 2.0 |
| Fisheries & aquaculture expert | 5 | 3.3 |
| Wildlife and ecotourism expert | 3 | 2.0 |
| ii)   Vocational home economics education | | |
| Childcare & development expert | 3 | 2.0 |
| Dress making & fashion designing specialist | 8 | 5.3 |

|  |  |  |
|---|---|---|
| Cosmetology/beauty spa professionals | 5 | 3.3 |
| Interior decoration expert/ consultant | 7 | 4.6 |
| Eateries& confectionary operator/ manager | 4 | 2.7 |
| Bead making and wire works | 10 | 6.6 |
| iii   Vocational business & office education |  |  |
| Establishment of private secretariat & training centers | 5 | 3.3 |
| Establishment of post-primary business/commercial schools | 3 | 2.0 |
| Establishment of private business centers | 4 | 2.7 |
| iv)   Trades and industrial technical education |  |  |
| Repair& service of air conditioner, water heater, compressor | 4 | 2.7 |
| Diagnose, repair & service of automobile | 7 | 4.7 |
| Auto-body maintenance and repair | 4 | 2.7 |
| Metalwork, welding & construction | 4 | 2.7 |
| Diagnose, repair & maintenance of electrical gadgets | 4 | 2.7 |
| Electrical installation specialist | 3 | 2.0 |
| Carpentry, upholstery &joinery | 8 | 5.3 |
| Graphics and sculpture expert | 3 | 2.0 |
| Building construction, block making & setting | 5 | 3.3 |
| Battery charger & rewire expert | 4 | 2.7 |
| v)   Distributive education |  |  |
| Sales and distribution manager | 2 | 1.3 |
| Brand/ project manager | 1 | .7 |
| Advertisement/ marketing / customers' relation expert | 4 | 2.7 |
| Wholesales of identified product line | 1 | .7 |
| Retail/ outlet sales of products | 3 | 2.0 |
| Depot/ ware housekeeper | 2 | 1.3 |
| General merchandise | 1 | .7 |
| Total | 150 | 100 |

Source: Field survey, 2019

## Respondents' attitude towards the import of inclusive training in VTE for sustainable entrepreneurship

Table 3a shows that the respondents agreed that inclusive training in vocational and technical education is a veritable tool for reducing social vices and youth restiveness, a source of dependable employment, promotes entrepreneurship strategy and promotes local and international economy ($\overline{xx}$= 1.58, 1.57, 1.56 and 1.56 respectively). Similarly, on Table 3b majority (59.3%) of the respondents displayed positive attitude towards the import of inclusive training in VTE for sustainable entrepreneurship. This supports Orji (2011) in that trainings in VTE promote the spirit of enterprise and industry among its recipients. This positive attitude therefore, can be directed towards self-reliance through inclusive training for sustainable entrepreneurship.

Table 3a: Distribution of the respondents based on their attitude towards the import of inclusive training in VTE for sustainable entrepreneurship

| Attitudinal Statements | Agree | Disagree | Mean $\bar{x}$ |
|---|---|---|---|
| 1. Generation of dependable employment/creation of job opportunities | 88(58.7) | 62(41.3) | 1.57* |
| 2. Training in VTE breeds idleness and laziness | 65(43.3) | 85(56.7) | 1.52 |
| 3. Training in VTE promotes entrepreneurship strategy | 87(58.0) | 63(42.0) | 1.56* |
| 4. It promotes local and international economy | 75(50.0) | 75(50.0) | 1.47 |
| 5. It develops creative thinking and innovativeness. | 73(48.7) | 77(51.3) | 1.45 |
| 6. It does not give satisfaction and fulfillment | 74(52.0) | 78(58.0) | 1.54* |
| 7. Setting up business in VTE requires ability to bear risks | 67(44.7) | 83(55.3) | 1.50 |
| 8. Training in VTE is just a propaganda and cannot be fruitful | 86(57.3) | 64(42.7) | 1.58* |
| 9. It is a veritable tool for reducing social vices and youth restiveness | 71(47.3) | 79(52.7) | 1.52 |
| 10. It is tasking and demanding | | | |

Source: Field survey, 2019 Grand mean =1.53

*Positive attitude, figure in parentheses represent percentages

Table 3b: Categorisation of the respondents based on their attitude towards the import of inclusive training in VTE for sustainable entrepreneurship

| Category | Frequency (f) | Percentage (%) |
|---|---|---|
| Positive attitude | 89 | 59.3 |
| Negative attitude | 61 | 40.7 |

Source: Field survey, 2019 Positive at >1.5

## Possible constraints to inclusive training in VTE for sustainable development

Table 4 shows that the three most important constraints to inclusive training in VTE are: inadequate or low level of funding of Vocational and Technical Education, wrong societal perception of vocational and technical education and poor remuneration of Vocational and Technical Education teachers. This suggests a quick intervention in proffering lasting solutions to these challenges by all the stakeholders involved in VTE.

Table 4: Respondents' ranking of the possible constraints to inclusive training in VTE for sustainable development

| Constraints | A constraint | Not a constraint | Rank |
|---|---|---|---|
| 1. Wrong societal perception of vocational and technical education | 107 | 43 | 2nd |
| 2. Inadequate or low level of funding of vocational and technical education | 124 | 26 | 1st |
| 3. Shortage of Qualified Manpower | 69 | 81 | 7th |
| 4. Inadequate Facilities and Equipment for Teaching and Learning | 88 | 62 | 6th |
| 5. Brain Drain | 95 | 55 | 5th |
| 6. Poor Remuneration of Vocational and Technical Education Teachers | 112 | 38 | 3rd |
| 7. Poor Organization and Implementation of the Objectives of VTE | 67 | 83 | 8th |
| 8. Problems associated with the curriculum of Technical and Vocational Education | 98 | 52 | 4th |
| 9. Low level of Staff Training and Retention | 63 | 87 | 9th |

Source: Field survey, 2019

## Relationship between the socio-economic characteristics of the respondents and their attitude towards inclusive training in VTE for sustainable entrepreneurship

Table 5 shows that the socio- economic characteristics of the respondents which have significant relationship with the attitude of the respondents towards inclusive training in VTE for sustainable entrepreneurship were the occupational status and monthly income ($x^2 x^2$= 36.985 and r= 65.614. p< 0.05 respectively). Possible reason for this may be from statistics showing that Nigerian youths are the most vulnerable to unemployment and low level of income generation. Therefore, they need to seek alternative escape through inclusive training in VTE.

Table 5: relationship between the socio-economic characteristics of the respondents and attitude towards inclusive training in VTE for sustainable entrepreneurship

| Variables | $x^2$-value | df | P-value | Decision |
|---|---|---|---|---|
| Sex | 10.997 | 10 | 0.445 | NS |
| Educational attainment | 44.397 | 44 | 0.455 | NS |
| Occupational status | 36.985 | 20 | 0.024 | S |
| | r- value | | P- value | Decision |
| Monthly income | 65.614 | | 0.019 | S |

Source: Field survey, 2019 * Significant at p< 0.05

**Relationship between the constraints to training in VTE and respondents' attitude towards the possible areas of inclusive training in VTE for sustainable entrepreneurship**

Table 6 shows that constraints to training in VTE has significant effect on the attitude of youths towards embracing training in VTE to promote sustainable entrepreneurship. This show that these constraints are deterrents to inclusive training in VTE for sustainable entrepreneurship. This implies that the more the constraints are tackled, the better the contribution of VTE to improving the standard of living of people through job creation.

Table 6: Relationship between the constraints to training in VTE and respondents' attitude towards the possible areas of inclusive training in VTE for sustainable entrepreneurship

| Variable | $\varkappa^2$-value | df | P-value | Decision |
|---|---|---|---|---|
| Constraints * | Attitudes | 56.65018 | 0.000 | S |

Source: Field survey, 2019 * Significant at p< 0.05

## Conclusion and Recommendations

The study concludes that inclusive training in Vocational and Technical Education can stimulate sustainable entrepreneurship. As evident from the study, most of the respondents showed positive attitude towards the import of inclusive training in VTE for sustainable entrepreneurship.

Based on the findings of the study, it is therefore recommended that:

1. adequate inclusive trainings in the various areas of VTE should be conducted at periodic intervals for the youths; and
2. the constraints militating against inclusive trainings in VTE identified in this study should be addressed by all the stakeholders.

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