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KWAZULU-NATAL**

**INYUVESI  
YAKWAZULU-NATALI**

**COLLEGE OF HUMANITIES**

**School of Education**

**Technical and Vocational Education and Training (TVET)  
Provision in Nigerian Technical Colleges: Exploring the  
Relevance, Effectiveness and Efficiency (REE) of Stakeholder  
Partnerships Using Community-Based Participatory Action  
Research (CBPAR)**

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**TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING  
(TVET) PROVISION IN NIGERIAN TECHNICAL COLLEGES:  
EXPLORING THE RELEVANCE, EFFECTIVENESS AND  
EFFICIENCY (REE) OF STAKEHOLDER PARTNERSHIPS USING  
COMMUNITY-BASED PARTICIPATORY ACTION RESEARCH  
(CBPAR)**

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**Thesis Submitted in fulfilment of the academic requirements for the degree of Doctor of  
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School of Education  
University of KwaZulu-Natal**

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## **ABSTRACT**

This thesis explored Technical and Vocational Education and Training provision in Nigerian technical colleges with the specific focus on establishing the relevance, effectiveness and efficiency of stakeholder partnerships. It used Community-based participatory action research. The study was guided by three research questions in the preliminary, and two for the main study. These research questions are outlined as follows:

### **Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

### **Main Study**

1. Are the selected TVET institutions surveyed in any form of partnership with any organisation? If so, what types of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

In order to address these research questions, an explanatory sequential mixed method design involving a Community-based participatory action research was used. Data was collected for the preliminary study through desk review, document analysis and closed-ended questionnaires for the first, second and third research questions respectively. For the main study, data was generated through semi-structured questionnaires for research question one, whilst that of two was generated through pre- and post-intervention minutes of meetings, personal interviews and focus group discussions. Four frameworks were employed in the study. An analytical framework for evaluating TVET provision in terms of relevance, effectiveness, and efficiency was used to gauge the internal efficiency of selected technical colleges in research question three of the preliminary study. The Triple Helix (TH) and the Quadruple Helix Innovation Models (QHIM) were used to explore partnerships in the main study. The last framework – the Ecological System Theory (EST) – was used in understanding the development of a new relevant, effective and efficient (REE) partnership in TVET provision. The last theory, EST, was applied due to the limitations of the THM and the QHIM in describing the levels of interaction between different stakeholders in quality TVET provision. The EST however, allowed for the discovery of the different levels of interaction amongst stakeholders required to collaborate for REE TVET provision in Nigerian technical colleges.

For research question one, the preliminary study results revealed 155 TCs across the six geopolitical zones. In addition, the provision was not evenly distributed because there is no technical college in Zamfara State in North-West. Research question two indicated a highly disproportionate ratio of TCs versus general education schools – ranging from 1: 138 to 1:70. For research question three the results showed that amongst the 22 technical colleges surveyed across the four geopolitical zones, only two colleges had their overall index of efficiency above 50%, with North-Central at 56% and South-West at 54%.

Findings from the main study revealed, for research question one, that only 32% of TCs were involved in partnerships, that is, seven out of 22. However, it was significant to note that five out of the seven colleges were involved not only in one-to-one, but in multiple stakeholder partnerships. With regard to the prelude to research question two, using CBPAR, 26 factors were elicited to explain the low efficiency experienced by GTC-Port Harcourt. Thus, to strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges a new type of collaboration that portrays the characteristic features of the QHIM needed to be established – in other words, a new partnership arrangement that incorporates technical colleges, industry, government, and other stakeholders from civil society/NGOs, World Bank (IFC), community, Parents Teachers' Associations (PTA), philanthropic individuals, and volunteers. Furthermore, the use of a social ecological lens on the new model of REE partnerships enabled the illumination of different interactions and impact levels among the various stakeholders. As opposed to other studies where government is the propelling force within the TVET system, this study shows that industry is key to the production of skilled graduates.

The findings of this study have implications for policy, practice and research. Nigerian education policy acknowledges the need for the government to partner with other stakeholders in producing the skilled workforce needed in the country. However, findings in this study reveals a paradigm shift from government to the industry as the key stakeholder needed to produce a competent and skilled workforce needed for industrial development in Nigeria. Significantly, the implications of this study for practice is such that, having industry as the key stakeholder would boost the production of skilled graduates thereby reducing the skills mismatch that are the major cause of unemployment amongst secondary school leavers in Nigeria. It will also create room for gainful employment amongst the youths, thereby reducing the problem of unemployment. Industry provides inputs such as delivering workplace training to TVET trainers, contributing financially to national training funds, providing opportunities for teachers to regularly update themselves through workplace experiences, and contributing to development of the curriculum for economic relevance. The findings of this study also have implications for research, in that it has extended the debate on stakeholder partnerships in TVET provision through the application of the social ecological lens, which illuminates the different levels of interactions and impact amongst various stakeholders required for quality TVET provision.

## DECLARATION

I, **Dagogo William Legg-Jack** declare that:

- i) The research reported in this thesis, except where otherwise indicated is my original work;
- ii) This thesis has not been submitted for any degree or examination at any other university;
- iii) This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons;
- iv) This thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
  - a. Their words have been re-written but the general information attributed to them has been acknowledged;
  - b. Where exact words have been used, their writing has been placed within quotation marks, and referenced.
- v) The work described in this thesis was carried out in the School of Science and Technology Education, University of KwaZulu-Natal, from 2015-2018 under the supervision of Dr Busisiwe Precious Alant (Supervisor); and
- vi) The Ethical Clearance No. HSS/0799/015D was granted prior to undertaking the fieldwork.

Signed:  \_\_\_\_\_ Date: 26<sup>th</sup> September, 2018

As the candidate's Supervisor, I, Dr Busisiwe Precious Alant, agree to the submission of this thesis.

Signed:  \_\_\_\_\_ Date: 26<sup>th</sup> September, 2018

# ETHICAL CLEARANCE



14 October 2015

Mr DW Legg-Jack 213570929  
School of Education  
Edgewood Campus

Dear Mr Legg-Jack

Protocol reference number: HSS/0799/015D

Project title: Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges: Exploring the Relevance, Effectiveness and Efficiency (REE) of stakeholder partnerships using Community-Based Participatory Action Research (CBPAR)

**Full Approval – Expedited Application**

In response to your application received on 26 June 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....  
Dr Shenuka Singh(Chair)  
Humanities & Social Sciences Research Ethics Committee

/pm

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## **DEDICATION**

This piece of work is dedicated to God Almighty for the enabling grace given to me in completion of this noble task.

## ACKNOWLEDGEMENTS

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## **ABBREVIATIONS**

ADB	Asian Development Bank
AfDB	African Development Bank
AT	Apprenticeship Training
CBPAR	Community-Based Participatory Action Research
CTE	Career and Technical Education
EBCP	Engineering Building Capacity Program
EIM	Electrical Installation and Maintenance
EST	Eco System Theory
ETF	Education Trust Fund
FET	Further Education and Training
FME	Federal Ministry of Education
FRN	Federal Republic of Nigeria
LAG-TVET	Inter-Agency Group on TVET
IDP	International Development Partners
MAET	Manitoba Advance Education and Training
MDGs	Millennium Development Goals
MMR	Mixed Method Research
MVM	Motor Vehicle Mechanics
NBS	National Bureau of Statistics
NBTE	National Board for Technical Education
NGOs	Non-governmental organisations
NPE	National Policy on Education
OE	Occupational Education
PE	Professional Education
QHIM	Quadruple Helix Innovation model
REE	Relevance, Effectiveness and Efficiency
SDG	Sustainable Development Goals
TE	Technical Education
THM	Triple Helix model
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization.

UNEVOC	International Centre for Technical and Vocational Education and Training
VE	Vocational Education
VT	Vocational Training
VTE	Vocational Education and Training
VTET	Vocatioanl and Technical Education and Training

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# CHAPTER 1

## INTRODUCTION

Globally, Technical and Vocational Education and Training (TVET) has been considered a popular aspect of education to combat the rising wave of poverty and unemployment, and to address the changing skills need of the workplace and rapid technological innovation (UNESCO, 2004; AU, 2007; Palmer, 2009; Hilal, 2012; McGrath, 2012; Wang, 2012; Usman, Clement & Raihan, 2013). However, despite the recognition accorded TVET internationally, several studies have revealed that this sector of education has faced gross neglect, and little emphasis has been placed on its provision (Jacob, 2006; Akanbi, 2017). Such neglect and little emphasis as faced by TVET has resulted in huge uncertainties such as poor funding, a dearth/shortage of qualified training personnel, and infrastructural decay, such as a lack of workshop facilities, overcrowded classrooms, and lack of infrastructural facilities such as classrooms and workshop buildings (Aina, 2005; Okwori, 2007; Abubakar, 2010; Umar & Ma'aji, 2010; Watters, Hay, Dempster, & Pillay, 2013; Ayonmike, 2014; Okwelle & Wordu, 2014; Legg-Jack, 2014; Oseghale, Abiola-Falemu, & Oseghale, 2015; Takei, 2016). These challenges, as cited by different scholars above, were also acknowledged by the Federal Ministry of Education (FME) 4-Year Strategic Plan for the Education Sector as part of the glitches to an effective TVET system in Nigeria (FME, 2012, p. 63). In the document, it was also noted that government alone cannot provide all the resources needed to transform the education sector, and as such credence is laid on partnerships between the government, private sector, non-governmental organisations (NGOs), international development partners (IDPs) and faith-based organisations as a source for funding education in Nigeria (FME, 2012).

Therefore, this study explores the relevance, effectiveness, and efficiency of stakeholder partnerships with regard to TVET provision in Nigerian technical colleges (TC) using Community-based participatory action research (CBPAR). In view of the above, this chapter is designed to explore the subject matter by providing insights on the context and concept of TVET, the contextual background, challenges facing TVET in Nigeria, a statement of the problem, the purpose of the study, research questions, and the significance of the study, among others.



## **1.1 CONCEPT AND MEANING OF TVET**

In literature, the concept we now refer to as TVET has included these classifications: Vocational Education and Training (VTE), Career and Technical Education (CTE), Vocational Training (VT), Apprenticeship Training (AT), Technical Education (TE) and Occupational Education (OE) (Ladipo, Akhuemonkhan, & Raimi, 2013; Wahba, 2010). Others include Vocational Education (VE), Vocational and Technical Education and Training (VTET), Professional Education (PE) and Further Education and Training (FET) (Allais, 2012; Tagicakiverta, 2012; Wang, 2012). In 2004, it was recommended by UNESCO that the more appropriate term for the sector is “technical and vocational education and training” [TVET] (UNESCO, 2004). For the purpose of this study, easy comprehension and understanding, these terminology technical and vocational education and training shall be considered as ‘TVET’.

The various categories in the concept of TVET, as outlined above, point to the fact that TVET has a link with employability and national development (Raimi & Akhuemonkhan, 2014). The implication is that TVET has the transformative capability that assures its recipients the right entry into the world of work (Maclean, 2011). With these notions in mind, there is need to consider the actual meaning of the concept, TVET:

TVET is described as a “comprehensive term referring to those aspects of the educational process involving, in addition to general education the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (UNESCO, 2010).

This definition of the concept of TVET by UNESCO is widely recognised and used globally (FRN, 2013).

## **1.2 CONTEXT AND RESEARCH BACKGROUND**

Nigeria, like other nations of the world, has embraced TVET as a vehicle of social, economic, and technological advancement (Federal Ministry of Education [FME], 2012; FRN, 2013) In recognition of the potential of TVET, Nigeria described it in its Education Policy (2004) as a viable system of education, capable of providing the skills necessary for agricultural, commercial, and economic development, and as a means of preparing for occupational fields and effective participation in the workforce. Specifically, the Government of the Federal Republic of Nigeria [FRN] (2004, p. 30), states in its Education Policy that the objectives of TVET shall be to:

- i. Provide trained personnel in the applied sciences, technology and business particularly at craft, advanced craft and technical levels;
- ii. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and
- iii. Give training and impart the necessary skills to individuals who shall be self-reliant economically

The goals outlined above are based on the fact that education in Nigeria is construed as an instrument “per excellence” for effective national development (FRN, 2004). In a bid to ensure quality in the educational institutions, and the achievement of the above stated goals, quality should constitute one of the springboards of TVET system. In view of this, the government of Nigeria in its education policy established Inspectorate Services to enforce quality assurance (FRN, 2004). The purpose of these is to guarantee that the standards and values of education are not compromised, but strictly regulated, sustained and improved by training institutions to keep pace with the changes of the society and industry (Mohsin & Kamal, 2012; Onyesom & Ashibogwu, 2013). In pursuance of quality and recognition of the role of TVET for economic growth and in providing skills for self-sufficiency, it became imperative for the Nigerian government to establish the National Board for Technical Education (NBTE) in January, 1977 (Maigida, 2014; Arfo, 2016). According to these authors, the purpose of establishing the NBTE was to oversee and support the development of TVET in the country by way of standardizing curricular development and the regulation of the accreditation process. The enabling decree indicates that NBTE should also collaborate with agencies and other relevant stakeholders to determine their human resource needs with a view to developing responsive programmes that would meet their skills needs (NBTE, 1993). The NBTE is charged with the supervisory mandate to oversee all TVET programmes that fall outside university education, and technical colleges are within this category.

### **1.2.1 Technical Colleges in Nigeria**

Technical colleges (TCs) in Nigeria are categories of secondary schools where students acquire training in various trades. They are recognised as the principal TVET institutions in Nigeria, with the mandate to deliver full vocational training to equip its graduates with appropriate entry requirement into various occupations as artisans and craftsmen (Okoro, 2006). According to Bakare (2009), responsibility is placed on technical colleges to prepare craftsmen and technicians with excellence in various occupations. According to Umar and

Ma'ji (2010), this training qualifies them for jobs in both public and private sectors of the economy. In agreement with Umar and Ma'ji, Ndomi (2005) argues that both the public and private sectors require skilled and competent technicians who are equipped with skills to operate and maintain the available equipment (Ndomi, 2005). In recognition of these facts, there is need for a qualitative technical college programme to produce graduates that can perform competently in their respective trades without pre-employment training, as noted by Umar and Maji (2010).

From the foregoing, it is stated in the Nigerian Education Policy (2004, pp. 31-32) that trainees completing TC programme shall have three options, namely:

- i. Secure employment either at the whole of the whole course or after completing one or more modules of employable skills;
- ii. Set up their own business and become self-employed and be able to employ others; or
- iii. Pursue further education in advance craft/technical programme and in post-secondary technical institutions such as Science and technical colleges, Polytechnics or Colleges of Education (Technical) and Universities.

Therefore, meeting the objectives outlined above would mean equipping the graduates of TC with the necessary competencies that will either get them a paid or self-employment. The technical college programme is structured to cover about 34 different trades, of which Motor Vehicle Mechanics (MVM) and Electrical Installation and Maintenance (EIM) are part. Graduates of TCs, according to the FRN (2004), are expected to possess skills in Motor Vehicle Mechanic (MVM) and Electrical Installation and Maintenance (EIM) trades among others. The MVM trade is one of the TVET programmes that involves the acquisition of scientific skills in the design, selection of materials, construction, operation and maintenance of motor vehicles (Audu, Musta'amal, Kamin, Saud, & Inti, 2014). The MVM trade in TCs consists of three components namely: service station mechanics work; engine maintenance and refurbishing; and auto electricity. According to the NBTE (2001), the aim of the MVM trade is to enable its graduates to test, diagnose, service and repair any fault relating to conventional motor vehicle main assembly units and system to the manufacturers' specification. With this in view, MVM trade students are expected to possess the following attributes namely: good problem-solving skills; the ability to hear, smell, see clearly and communicate effectively; manual competencies and mechanical aptitude; interest in mechanical/electronic systems in motor vehicle; the ability to drive a range of vehicles; ability to read technical diagrams and illustration; physical fitness;

safety consciousness and a responsible work attitude; and keeping pace with technology (MAET, 2005).

On the other hand, the EIM trade is a programme according to NBTE (2003) equips its recipients to carry out the following skills, namely: demonstrate various experiments involving resistors, capacitors, and inductors (series/parallel connection); undertake both domestic and industry installations; and install electrical machines. Others include: prepare and join electrical cables; install/connect batteries for charging systems; use tools to dismantle, recoil and recouple an electrical machine (generator or motor); and undertake test on installations and machines using appropriate tools. Furthermore, the Electrical Craftsman are expected to test, diagnose, service, install and completely repair any fault on electrical machines and equipment, using the manufacturer's manual (NBTE, 2004). It was further reported that the EIM trade is to give training and impart the necessary skills leading to the production of craftsmen, technician and other skilled personnel who will be enterprising and self-reliant. On the other hand, the EIM trade is an aspect of the programme of TCs, which prepares its recipient with skills in the installation of electrical machines and equipment, maintenance of machines and equipment, winding of electrical machines, testing and inspection of electrical installations, and repair of electrical machines among others.

However, since the inception of the programme, evidence from studies show that TC graduates pass through the programme without having the needed practical competencies. This is due to several challenges, ranging from inadequate funding and inadequate curriculum to insufficient staff quality and quality, among others (Akhuemonkhan & Raimi, 2013; Kumazhege & Egunsola, 2014; Okorafor & Okorafor, 2016;). Other factors include: the lack of infrastructural facilities, tools and equipment, lack of stakeholder participation, production of unskilled graduates, lack of effective monitoring and evaluation (Ammani & Ogunyinka, 2011; Legg-Jack, 2014; Raimi & Akhuemonkhan, 2014; Eze & Okorafor, 2016). Hence, technical college programmes in recent time lack the capacity of producing graduates with the requisite skills for immediate paid or self-employment, thereby defeating the goal of the programme, which hinges on making its recipients immediately employable. With TCs being confronted with these challenges, meeting the vision of Nigeria being amongst the 20 leading economies in the year 2020 may not be feasible, considering the high level of youth unemployment in the country.

Some of these challenges as outlined above are discussed below.

### **1.3 CHALLENGES FACING TVET IN NIGERIA**

Although the challenges of TVET programmes are nowhere outlined in the Nigerian National Policy on Education (2004), several studies have shown that the sector is confronted with numerous problems ranging from inadequate funding, poor quality of training resources, and human resources among others (Udoka, 2010; Nwogu & Nwanoruo, 2011; Yusuf and Soyemi, 2012).

#### **1.3.1 Poor Funding**

Despite the importance ascribed to TVET by many governments in different parts of the world, the training system in Nigeria and other parts of Africa is largely not properly funded (Kingombe, 2011; Famiwole, Oke, & Amadi, 2012). TVET provision in Nigeria has never fared well due to poor financing of TVET programmes (Akhuemonkhan & Raimi, 2013; Ladipo et al., 2013). Generally, it is a well-known factor that the provision of technical and vocational skills through formal TVET is very expensive, since the maintenance costs of facilities and equipment are on the high side (ibid). Several studies have reported that funding is a major constraint to the actualisation of TVET policy goals in Nigeria (Osam, 2013, Serumu, 2015; Okoli, Wejinya, Agan, & Asufi, 2016). The issue of finance has been considered a major hindrance in the pursuance of the objectives of TVET given that this aspect of education is an expensive form of education, so expanding it without the necessary and adequate facilities and equipment does not lead to increasing productivity in the long run (Kingombe, 2011). The implication of this, according to him, is that industry employers, workers, and communities have an important role to play in achieving an equilibrium between the needs and provision, through constant consultation and discourse (Atchoarena, 2009a). The issue of poor funding cannot be over-emphasised. It is critical, as it inhibits institutional capacity and capability to meet their instructional and infrastructural needs, contrary to the objectives of TVET (Moses & Kingsley, 2013; Oladipo, Adeosun, & Oni, 2009). Thus, Atchoarena (2009a) contended that financing strategies for TVET are part of a broader effort to engage all concerned stakeholders, especially companies and learners in a dynamic process of skills acquisition. He further proposes that achieving such objective requires maintaining a careful balance between incentives and constraints, according to national circumstance.

#### **1.3.2 Poor Quality of Training**

One thing that has compromised the quality of training in the Nigerian TVET system and that of other nations of the world, as remarked on by the Asian Development Bank [ADB]

(2008), Eze and Okorafor (2016), is the issue of lack of essential inputs. In agreement with this, Okorafor and Okorafor (2011) contended that inadequate instructor training, a lack of instructional aids, the use of outmoded tools and equipment, a dearth of qualified, competent, and motivated trainees and teaching staff, and lack of innovative strategies, such as competency based training, among others, contribute to the low quality of training.

#### **1.3.2.1 Shortage of TVET Teachers**

A teacher gap analysis which was conducted as part of the Education Sector Status Review shows that all Colleges in Nigeria lack adequate number of teachers, whilst some do not have at all (FME, 2005). A study by Usman, Clement and Raihan (2013) found that the number of competent technical teachers in TVET institutions in Katsina State, Nigeria is less than the expected number. In a related study, it was also revealed that inadequate supply of technical teachers is part of the challenges inhibiting the effective achievement of TVET objectives in our technical institutions (Oviawe, 2009).

#### **1.3.2.2 Dearth of Qualified Technical Instructors**

According to Fafunwa (2012), the success or failure of any educational programme depends on the quality of teachers and technical instructors they possess. Fafunwa further posits that the foundation of a sound quality system of education totally hinges on the adequate cadre of technical instructors. To deliver the type of development experienced in other parts of the world, there is need to saturate the system with quality and adequate number of teachers. The study by Bandele and Faremi (2012) established that the lack of in-service training and poor conditions of service are part of the challenges of technical college teachers.

#### **1.3.2.3 Lack of TVET Facilities and Equipment**

Achieving efficiency in any TVET institution, according to Savage and Brennan (2011), depends on the availability of training facilities and equipment. Idialu (2007) agreed to this when he posited that the efficiency of TVET delivery depends on the adequate provision of facilities, in terms of building infrastructure and equipment, to ensure quality training. Studies have shown that part of the challenges to the implementation of TVET programmes in Nigeria is the inadequacy of training facilities, non-functional tools and equipment among others (Ibeneme & Eze, 2010; Osam, 2013). It was also found that the lack of workshop tools, equipment and library facilities, among others hinders the efficiency of technical colleges in

North-East Nigeria (Kumazhege & Egunsola, 2014). Corroborating this, Abassah (2011) argued that a good number of technical colleges experience the challenge of inadequacy in terms of workshops, even when instructors are ready to dispense their knowledge. Therefore, if TVET programmes must yield 100% efficiency, so as to attain its intended objectives, then there is a need for the adequate provision of training facilities and appropriate workshop tools and equipment that will ensure quality training in technical institutions (Afeti, 2009).

### **1.3.3 Lack of Monitoring and Evaluation**

Moshin and Kamal (2012), together with Onyesom and Ashibogwu (2013), remark that the reason Nigeria established an inspectorate services for its educational system is to ensure that standards and values are not compromised, but are strictly regulated, sustained and improved by training institutions to keep pace with the changes of the society and industry. However, this purpose seems defeated, as a study by Raimi and Akhuemonkhan (2014) found lack of quality control to be one of the factors that impedes the effective implementation of TVET programmes in Nigerian institutions.

### **1.3.4 Poor Management and Administration of TVET**

According to Akamobi (2005), part of the difficulties experienced in the execution of TVET policies has its roots with school managers, for example, school principals; the reason being that they are upshots of general education and in that capacity they tend to place their emphasis on general education, which in this way hinders the nature of the TVET framework. Idialu (2007) advised that TVET institutions should be manned by professionals in the field, and the heads of such training institutions should undergo periodic training so as to boost the quality of the programmes. Osam (2013), in his study in Rivers State, South-South, found that TVET has not fared well because its management is left in the hands of inexperienced personnel from other fields of education. Osam stressed that some courses offered in the State technical colleges were products of a curriculum that is not aligned with industrial needs within the State, and he attributed this to poor administration of the management personnel.

Furthermore, with such challenges in the TVET sector as discussed above, one can justify the assertion, by Ibeneme (2007) and Ozioma (2011), that Nigeria has placed little emphasis on the provision of this type of education. Hence, there is a large proportion of students opting for general education as opposed to technical education-oriented programmes. For example, according to Oviawe (2015), in the 2009/2010 academic session, the enrolment of students in Nigerian TCs was 74, 299 as against 6, 625, 943 for general education (Secondary

Schools). It was also reported that the total enrolment figures in TVET programmes in Nigeria as at 2006 was less than three percent (3%), of which when compared with countries seeking to have rapid socio-economic development is negligible as those countries target about 50% enrolment (Yakubu, 2009). Similarly, at the post-secondary level, it was also reported by FME (2012) that approximately 74% opted for conventional education in the Universities, whilst 19% enrolled for technical education in the polytechnics.

According to Legg-Jack (2014), revamping TVET means government embarking on policy reform that will forestall all gaps that impede the effective implementation of the programme.

#### **1.4 POLICY INTERVENTIONS**

According to Okolocha (2012) Nigeria has joined her counterparts in other parts of the world in revamping and repositioning TVET programmes geared towards ensuring a national system of vocational education. Consequently, policy makers clamoured for revisiting of TVET policy to re-orient the country: towards sustainable development; poverty mitigation, responsible citizenship, industrial progress and economic advancement (FME, 2012; FRN, 2013) in order to recognise it as a tool for national development (Dangote, 2013).

In 2004, the Nigerian National Policy on Education was reviewed to cater for the deficiencies in the Education sector based on nine issues, of which the eighth was to “reposition science, technical and vocational education in the scheme of national education for optimum performance” (FRN, 2004). To achieve the objective of revamping and repositioning TVET in Nigeria, the Federal Government of Nigeria instituted a strategy to upgrade the quality of TVET with Education Trust Fund [ETF] (Olukiri, 2006). A three-year action plan to revamp TVET with a budget of N5 billion through the ETF was mapped out as follows: 2005-N1.5 billion; 2006-N2.0 billion; and 2007-N2.5 billion. In 2009, the Federal Ministry of Education prepared a Roadmap for the Development of the Nigerian Education Sector: May 2010-April 2011. In 2011, the President of the Federal Republic of Nigeria, Goodluck Jonathan, initiated the Transformation Agenda, which has Human Capital Development as one of its major goals (Dangana, 2012). Education was considered central to the actualisation of the Transformation Agenda. In order to address the mirage of challenges faced by the Education sector in Nigeria and also to take into account the aims of the Transformation Agenda, a 4-Year Strategic Plan for the Development of the Education Sector: 2011-2015 was developed, (FME, 2012). One key area considered in the 4-Year Plan was to strengthen TVET so that its recipients can



compete in the current global economy (FME, 2012). Furthermore, the most recently reviewed National Policy on Education (2013, p. ii) was prepared to update the previous editions and to cater for recent development in the context of the Transformation Agenda and ensuring strategic plans in Education. These strategic plans in education have fostered the role for education as an investment for economic, social and political development; an aggregate tool of empowerment for the poor, and the socially marginalised groups, and an effective means of developing the full capacities and potential of human resource (FRN, 2013, p. ii). Others aims include the development of a competent workforce, through the acquisition of practical life skills relevant to the world of work as a means of developing learning societies, fit and relevant to the 21<sup>st</sup> century (ibid). According to the policy, the achievement of all these can only be possible through strategic and collaborative partnerships with key stakeholders (FRN, 2013).

However, despite all the policy interventions, there seems to be no significant change in the Nigerian TVET sector, as the programme still appears to be far from receiving massive acceptance, and full implementation (Zite & Deebom, 2017). For instance, there has been rise in the level of unemployment in the country. According to the National Bureau of Statistics [NBS] (2017), the unemployment level rose from about 10% in 2015 to 14.2% in 2016. In 2017, there was another rise in the level of unemployment to 18.8% as reported in the Business Day online newspaper, as reported by Eleanya (2017). Youth in Nigeria have their largest share of the unemployment rate among secondary school leavers (NBS, 2012).

The high level of unemployment in Nigeria has been blamed on inadequate preparation of youth by educational institutions which has resulted in the lack of relevant practical competencies, and mismatches between the skills taught and those required by employers of labour (Okoye, 2017; Okoye & Okwelle, 2014). Other reasons include, but are not limited to, the wrong impression about TVET, unbalanced/outmoded curricula, and obsolete facilities among others (Adekola, Allen, Olawole-Isaac, Akanbi & Adewumi, 2016); Audu, Kamin & Balash, 2013; Oseni, 2012; Lily & Efajemue, 2011; Dike, 2009). Consequently, combating the ugly menace of unemployment would mean to embark on quality TVET delivery, since it is a skill-oriented programme. These failures, as observed in the Nigerian TVET system, could be attributed to the supply-driven approach of providers of skills training programme. This approach accords recognition to the government as the key player in the TVET sector, and as such, the programmes of technical institutions fail to produce the type of skilled workforce needed by the industry. Hence there is need for a paradigm shift whereby industry is accorded

a prominent and key role in relation to other stakeholders in driving the production of the required workforce that will transform the nation.

Edomwonyi, Osasogie and Olaita (2016) thus argued that providing high quality TVET programme would mean partnering with multiple stakeholders from diverse sectors, since the prevailing situation seem to suggest that government alone cannot provide for all the resources needed for efficient TVET provision.

Considering the emphasis on the provision of quality TVET that will meet policy objectives, and thereby tackling the issue of unemployment among others, this study intends to explore the relevance, effectiveness and efficiency of stakeholder partnership with regard to TVET provision in Nigerian technical colleges, using the community-based participatory research approach.

## **1.5 STATEMENT OF THE PROBLEM**

An effective TVET programme is one that equips its recipients with the skills essential for paid employment, together with what is needed for national development. Nigeria has placed great emphasis on TVET as one of the major training strategies adopted for the development of the required manpower that will drive the economy of the country to the achievement of its dream of becoming one of the 20 leading economies in the year 2020 and that of the Millennium Development Goals [MDGs] (Musa, Awolesi, & Okafor, 2012). The reason is that TVET is considered an effective education choice designed to train a skilled and entrepreneurial workforce that is needed to create the wealth that would ameliorate the menace of poverty and unemployment (Maigida, 2014). Technical colleges in Nigeria, established on the philosophical footings of TVET, are saddled with the responsibility of producing craftsmen who will function at the middle manpower level in the country. Its graduates are expected to acquire the necessary skills that will enable them to be self-employed, to employ others or to be employed in other industries.

However, as seen in my Masters study, Legg-Jack (2014), the TC programme is hampered to a large extent in producing graduates with relevant skills due to weak collaboration between policy makers (government), teachers and students (academia), and employers (industry). This weak link has led to variations in how the policy makers, TC teachers and graduates, together with industry employers constructed the skills need of TC graduates. The following have also been found to be part of the problem inhibiting the effectiveness and efficiency of TC programme: lack of funds, inadequate qualified training

personnel, poor staff development, lack of modern training facilities, outmoded and misaligned curricula. Furthermore, the problem is encountered in the provision of training materials and in the lack of effective partnership between TCs, industry and government in the planning and implementation of TC programmes. The study revealed that the huge demand on TCs to produce graduates with relevant skills for self-reliance, job creation and industry is only conceivable through relevant stakeholder partnerships with designated roles to ensure the effective provision of TVET at TC level.

From studies reviewed in Chapter 3, it was noted that much emphasis was placed on either the supply or demand side of TVET provision, rather than considering both in a single study. More so, some of the studies reviewed were either quantitative, qualitative or mixed methods, but none of the mixed method studies employed the methodological strengths of CBPAR in exploring the issue of TVET provision. CBPAR is an approach that involves stakeholders within the same community at all stages of the research in providing solutions affecting community members. Furthermore, there is paucity of empirical evidence on TVET Provision in Nigerian TCs and effective stakeholder partnerships. Hence, this study explored the relevance, effectiveness and efficiency of stakeholder partnership in TVET provision in Nigerian TCs using CBPAR.

## **1.6 PURPOSE OF THE STUDY**

Central to the purpose of this study is to explore the relevance, effectiveness and efficiency (REE) of stakeholder partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian technical colleges, using community-based participatory action research (CBPAR). It describes the various roles of stakeholders, with the aim of strengthening and developing a new model of partnership for relevance, effective and efficient TVET provision in Nigerian technical colleges. To achieve this aim, the study is divided into the following three specific objectives:

- i. To explore the extent of TVET provision in technical colleges in Nigeria in six geopolitical zones with regard to Engineering Trades programmes;
- ii. To compare TVET and general education schools provision in the six geopolitical zones.
- iii. To determine the level of efficiency of selected few TVET institutions across four geopolitical zones in Nigeria.

- iv. To identify the type of partnerships that exists amongst academia-industry-government with regard to issues of REE in the provision of TVET; and
- v. To strengthen the existing partnership and develop a new model of partnership for efficient TVET provision in technical colleges, using CBPAR.

## **1.7 RESEARCH QUESTIONS**

According to Pryor (2010), research questions help to establish boundaries in a study, thereby structuring its framework. Considering the focus of the study, the following research questions are formulated to guide the study.

### **Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

### **Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

## **1.8 SIGNIFICANCE OF THE STUDY**

According to the FRN (2004) and FME (2005), TVET, as prescribed by policy makers, is considered a practical education choice for re-directing the nation towards sustainable development, poverty mitigation, responsible citizenship, industrial progress and economic advancement. The significance of the study hinges on the fact that it will yield benefits to the government, technical colleges, industries and the nation at large. To the government, its findings will inform policy improvement with regard to the skills required to boost the development and advancement of technical college programmes in relation to industries in Nigeria; also, it will serve as a tool to combat poverty through self-reliance programmes. With regard to the colleges, they could use the findings of the study to restructure technical college programme to aid the production of graduates with skills that are not responsive to the need of industry. If so, the chances of TC graduates securing employment upon graduation, which is

the cardinal aim, will be improved. On the hand, the productivity level of industries will also increase, thereby reducing the cost of retraining TC graduates after being employed. Finally, to the nation, the recommendations, if implemented will improve the changes that youth will be engaged after graduating from various colleges, thus reducing unemployment. The outcome of this study also highlights the influence of roles and relevance of respective stakeholders within the TVET community and the promising opportunities that collaboration offers.

Furthermore, it is envisaged that the findings of this study will promote further research in the area of TVET provision, at not only the technical college level, but at other skilled-based institutions as well. As mentioned earlier, this area is under-researched. Given the paucity of literature on TVET provision in TCs, it is hoped that the findings of this study will provide reference for use by scholars and practitioners alike in the field of TVET.

## **1.9 RESEARCH METHODOLOGY**

In order to provide answers to the critical research questions asked in this study, the study adopted mixed method research (MMR). According to Creswell (2012) as well as Venkatesh, Brown, and Bala (2013), MMR is a research approach that combines both quantitative and qualitative methods in collecting, analysing data in a single study, either concurrently or independently, with the intent to understand a research phenomenon of interest. According to Soffer and Hader (2007), MMR is applied for the purpose of achieving a complementary view about an identified problem or phenomenon. For the purpose of this study, the explanatory sequential design strategy was applied for the preliminary and main study. Explanatory sequential design is such that the researcher starts by collecting and analysing the quantitative data, thereafter the result is used to shape data collection and analysis of the qualitative phase (Creswell, 2012).

The study was carried out in three Phases in the preliminary section, namely Phase 1, Phase 2, and Phase 3. Phase 1 was conducted based on a quantitative approach to provide answers to research questions one, two and three, which sought to record the extent and efficiency of TVET provision in Nigerian technical colleges, TVET provision compared to general education in six geopolitical zones, and the efficiency of few selected technical colleges in four geopolitical zones respectively. Phase 2 was a combination of quantitative and qualitative research. Phase 2 is further divided into five stages, and it explored the type of

partnerships in existence. Phase 3 employed a qualitative design which is based on the CBPAR approach to provide answer to research question four.

### **1.9.1 Sample and Sampling**

In this study, convenience sampling was adopted for phases 1 and 2; whilst for phase 3, a purposive sampling approach was applied. Samples for phases 1 and 2 included principals, engineering trade HODs and teachers, whilst phase 3 consisted of representatives from the government, industry, and technical colleges.

### **1.9.2 Sequential Mixed Method of Data Collection**

Data generation in the study followed the sequential approach. According to Creswell and Plano Clark (2007, p. 121), data collection strategies in sequential mixed method designs involves collecting data in an iterative process, whereby data is collected in one phase to contribute to the data collected in the next phase. In order to generate data needed to answer the research question set in this study, the process was carried out in two distinct phases namely; preliminary and main sections. The preliminary study consists of three questions, whilst the main study comprises of two, and data was collected according to the respective sections. For the first, second and third phases of the Preliminary Study, data was collected through desk review, document analysis, and closed-ended questionnaires respectively. Whereas, data for the first and second phases of the Main Study, was generated using semi-structured questionnaires, CBPAR (minutes of meetings, personal and focus group interviews)

### **1.9.3 Data Analysis**

Data analysis in mixed method research involves the integration of statistical and thematic techniques with a number of other techniques such as triangulation and data conversion (Teddie & Tashakkori, 2009). Quantitative data collected from phases 1 and 2 of the preliminary study were collated and analysed statistically using Microsoft word Excel sheet and bar charts. The results were presented in tabular form, bar chart to aid the illustration of the total figures with regard to TVET provision across the six (6) geopolitical zones of Nigeria, whilst data collected from questionnaires for research question three was analysed statistically using simple percentages in line with the analytical tool with the proposed indicators. The results were presented in tabular form, bar chart to aid the illustration of the total figures with regard to the efficiency of TVET provision across the four geopolitical zones of Nigeria,

Quantitative data collected at stage one of phase 1 in the main study was analysed statistically using simple percentages to determine the number of Technical Colleges into partnerships with other institutions/organisations. The results were then presented in tables and bar charts to help illustrate the total number of colleges in partnership in each zone across the four geopolitical zones surveyed. Whilst data analysis in stage two and phase 2 were carried analysed thematically and through the use of the THM and QHIM.

### **1.10 ETHICAL ISSUES**

Throughout the entire study, the issue of ethics was given due consideration since humans were involved (Burns, 2002). This entails protection of rights and privacy of all research subjects (Laws, Harper & Marcus, 2003). The assurance of confidentiality was also granted to all the participants (stakeholders) involved through informed consent (Cohen, Manion & Morrison, 2011). Since this is a mixed method study, content validity was employed at the quantitative phase (Thatcher, 2010), whilst triangulation was used in the qualitative phase (Creswell & Miller, 2000).

### **1.11 LIMITATIONS OF THE STUDY**

Limitations in research are issues that emanate in a study that are not within the control of the researcher, which tend to constitute hindrances to the successful execution of the study (Simon & Goes, 2013). Some of the issues that tend to limit the success of the study based on sample size and trades selected (on the inability to cover all the trades in technical colleges programme), finance, time, lack of availability of certain type of data, lack of willingness of some participants to take part in the study, coupled with the fact that the study was conducted in a period when Nigeria was in recession.

### **1.12 FRAMEWORKS**

The study employed the use of two frameworks, an analytical and a theoretical framework to guide the study. A brief description on the analytical framework is presented below, followed by the theoretical framework.

#### **1.12.1 Analytical Framework for Assessing TVET Efficiency**

The analytical framework used in this study is adapted from the Asian Development Bank [ADB] (2008). There are three major evaluation criteria in evaluating TVET namely; its relevance, effectiveness and efficiency (ADB, 2008). The framework was applied by Infotechs IDEAS (Pvt) Ltd in a study to determine the Efficiency of Government and Non-governmental

TVET Provisions funded by the ADB (IDEAS, 2008, p. iv). Each of these components is briefly described below.

**Relevance:** This is the ability of TVET provision to meet economic and social need of the nation. Meeting economic need focuses on responding to labour market demand, in other words aligning TVET programme with industrial requirement (ADB, 2008). Relevance according to Inter-Agency Group on TVET (IAG-TVET) reflects the assumption that the primary and key role of TVET is to raise skills levels and to help matching skills need at all levels in today's complex and changing labour market (IAG-TVET, 2012). It also entails the mechanisms and available capacity to understand transition from school and all types of TVET programmes to work as well as to capture labour market signals and to anticipate emerging skills need and the extent to which this informs TVET provision. Social relevance on the other hand, implies the availability of TVET programmes to vulnerable groups within the society (ADB, 2008).

**Effectiveness:** According to Engineering Building Capacity Program [EBCP] (2010) this is considered on the capacity of the TVET provided to meet or achieve its stated objectives. Effectiveness answers questions like "Does training result in the expected learning of the target population?" It is the extent to which planned activities are realized and planned results achieved. It is all about achieving the set target that is addressing the impacts of the national development objectives. An effective TVET institution is one that produces graduates that contribute to the economy either through paid or self-employment. The system can only be adjudged effective when it analyses the present and future skills demands of the country's economy and designs its training accordingly. More so, the effectiveness of a TVET system is considered satisfactory as long as it meets the different needs of industries (ECBP, 2010).

**Internal Efficiency:** This implies the relationship between the result achieved and the resources used that is the optimal use of finances, time and all resources. It also refers to the inputs with regard to the use of resources (fund, expertise, and time, among others) as posited by ADB (2008). According to ADB (2009), the level of output achieved is determined by the level of input made, in other words, quality inputs influences quality output. It is the achievement of positive results without wasted resources. An efficient TVET institution is considered as one that optimizes its resources such as finance, human, and time, so that no waste is recorded (ECBP, 2010). That is when the ratio of the output to the input is one (that is 100%); summarily, efficiency answers questions like "Is the training conducted with the minimum inputs relative to the output?" (ibid). The analytical framework described above was



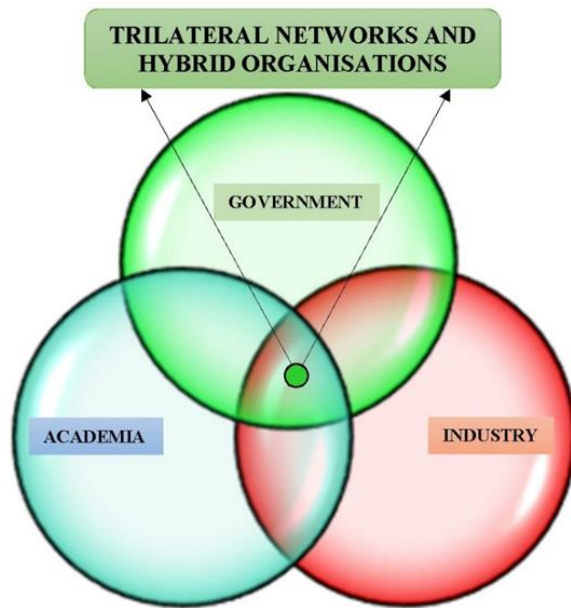
applied at the first phase to interrogate the level of TVET provision offered for Engineering Trades in Nigerian Technical Colleges

In the next section, I present the theoretical framework that was applied for the analysis of the second and third phases, that is research question 2 and three respectively.

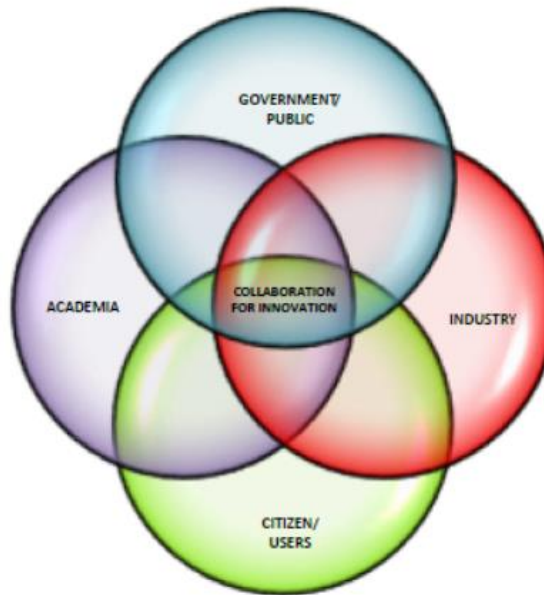
### **1.12.2 Theoretical framework**

The two theoretical frameworks employed in the study include the Triple Helix model (THM) also known as Triple Helix III (Triple Helix Research Group, 2014), the Quadruple Helix Innovation model [QHIM] (Carayannis & Grigoroudis, 2016), and the Eco System Theory [EST] (Eisenmann et al., 2008). The THM advocates for collaboration between the academia, industry and government to stimulate innovation (Etzkowitz & Leydesdorff, 1997), whilst on the other hand, the QHIM promotes collaboration between four different institutions namely the academia, industry, government and User spheres to drive and sustain innovation (Carayannis & Grigoroudis, 2016). According to Eisenmann et al. (2008, pp. 3-4) the Social ecological model includes some levels of concentric rings describing the different societal and environmental factors that influence the eating and physical activity patterns as a set of nested environment. The “physiologic core” of the model incorporates the genetic, physiologic, and socio-cultural forces that shape our identity. This core is surrounded by Microsystem, followed by the Exosystem, and Macrosystem. As mentioned in earlier, the Triple Helix model accommodates collaborations between the academia, industry and government, whilst the Quadruple Helix Innovation further includes the fourth sphere known as the ‘Users’.

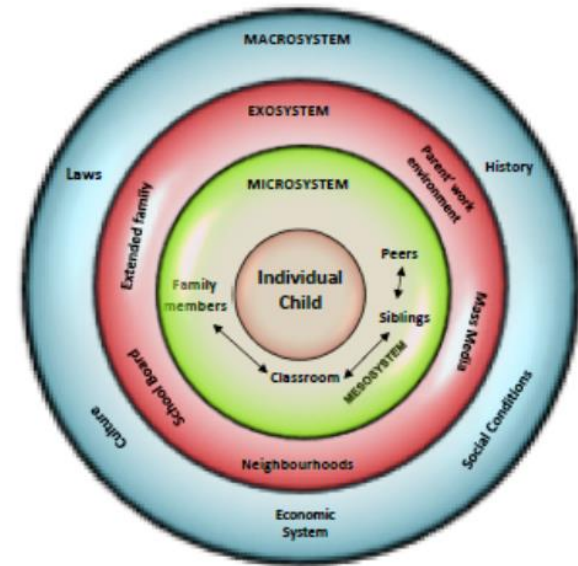
The THM in the literature has all its three spheres described as a block entity, whilst for the QHIM, there are component descriptions of all four spheres. These frameworks were used to interrogate the data generated in phases 1 and 2 of the Main study. However, the findings of the study highlighted the limitations of the THM. Data from the study revealed that in addition to the three (3) institutional components advocated for by the THM, other stakeholders are needed to improve on TVET provision in the Nigerian context. Thus, making the THM limited as an effective framework, thereby creating room for the application of the QHIM which proposes four institutional spheres. However, due to the limitation of the THM and QHIM in the exploration of the phenomenon of the study, the Eco system theory was introduced, which aided the development of a new model of partnerships for relevant, effective and efficient TVET provision in Government Technical College, Port Harcourt.



**Figure 1. 1 Triple Helix Model of University–Industry–Government Relations**  
(Etzkowitz & Leydesdorff, 2000)



**Figure 1. 2 Quadruple Helix Innovation Model**  
(Carayannis & Grigoroudis, 2016)



**Figure 1. 3 Bronfenbrenner's Ecological Model**  
(Eisenmann et al., 2008).

### 1.13 CLARIFICATION OF TERMS

Considering the meaning attributed to some of the terms, it is necessary to define the terms used throughout this study, and this is further discussed below in the context of the study.

**Community-based participatory action research (CBPAR):** CBPAR is considered a collaborative research approach that equitably involves members of the community and researchers at all stages of the research process. These contribute their expertise and share responsibilities and ownership to enhance the understanding of a given problem, and to integrate the knowledge gained with the view of improving the condition of community members (O’Fallon, Tyson, & Dearry, 2000).

**Industry Employer:** Any organisation or individual that employs graduates, particularly those from technical colleges.

**Mixed Method Research (MMR):** MMR, according to Creswell (2012) as well as Venkatesh, Brown, and Bala (2013), is a research method that combines both quantitative and qualitative in collecting, analysing data in a single study either concurrently or independently with the intent to understand a research phenomenon of interest.

**Stakeholders:** Stakeholders are individuals or organisations that are concerned with the development and welfare of an establishment and thus see their interests linked with the community’s state of being (Forh, 2014). In the context of this study, stakeholders refer to any individual(s), organisation or establishment whose contribution can yield a positive impact on the quality provision of TVET in Nigerian technical colleges.

**Partnership Category:** Partnership categories is used in this study to distinguish the different types of partnerships that emanates from the findings of the study and that from the literature.

**Technical and Vocational Education and Training (TVET):** It is the aspect of the educational process delivered in addition to general education focusing on the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge which are industrially oriented in diverse sectors of economic and social life (FRN, 2004; UNESCO, 2008).

**Triple Helix model:** The Triple Helix model is a model that analyses the trilateral network between academia, industry and government. The model proposes an improved and increased rapport amongst the various institutions in a knowledge-driven economy’s innovation system, especially academia, industry and government. Trilateral networks develop between the three

components whereby each organisation assumes the responsibility of the other as they form a fused organisation, thereby maintaining their traditional roles (Leydesdorff, 2012).

#### **1.14 OUTLINE OF THE STUDY**

In Chapter 1 of this study, I presented the background and context of the study; the rationale of the study; objective of the study; critical research questions; the context of the study; the significance of the study, the research methodology and the clarification of terms. Subsequent chapters will present:

**Chapter 2:** The framework that guided the study. These include the analytical and theoretical framework. **Chapter 3:** Outlined in this chapter are a geographical and demographic description of Nigeria, a literature review by scholars on contentions, debates and current trends in regard to Technical and Vocational Education in Nigeria, a review of the concept of employability skills worldwide, and the global experience of the employability of school graduates. **Chapter 4:** This chapter presents the research design and the methodology used in answering the research questions set for this study. **Chapter 5:** Quantitative data generated in phase 1 of the study was analysed in this chapter to answer the first research question on TVET provision in four geopolitical zones. **Chapter 6:** Analysis of the first research question in Phase 1 of the main study, which explored the existence and nature of partnership in existence, is presented in this chapter. **Chapter 7 and 8** present analyses of the second research question in Phase 2 of the main study, based on the CBPAR intervention programme, on factors that hinder the efficiency of TVET provision and how to strengthen the existing partnerships respectively. **Chapter 9** presents a theorisation of the development of a new REE partnerships in TVET provision. **Chapter 10:** This chapter provides the discussion of findings arising from the analyses of data generated in the study. Finally, **Chapter 11** presents the conclusion of the study, implications of the findings and its contribution to knowledge.

## **CHAPTER 2**

### **FRAMEWORKS**

This chapter presents the frameworks that guided the study. The efficiency of TVET provision in Nigeria and other developing countries in different parts of the world has been an issue of great concern. The reason is that TVET provision is confronted by gross neglect and little emphasis has been placed on its provision, which has contributed to several challenges ranging from lack of funds, inadequacy of training personnel, dearth of training facilities and lack of stakeholder participation, among others. Given the current status of TVET provision, government alone does not have the capacity to cater for all resources required for a quality TVET programme. Hence, the present situation presents the need to involve other stakeholders in order to develop a sustainable partnership model for an efficient provision of TVET at the technical college level. To achieve this, this chapter is therefore divided into five sections, each of which looks at the concerns raised in the study. The sections are namely:

- 2.1 Exploration of the efficiency TVET provision through the use of an analytical framework from ADB;
- 2.2 Exploration of partnerships through the use of the Triple Helix Model (THM);
- 2.3 Exploration of partnerships through the use of the Quadruple Helix Innovation Model (QHIM);
- 2.4 Exploration of relevant, effective, and efficient (REE) partnerships through the use of Eco-social theory (EST);
- 2.5 Discussion and conclusion of the chapter.

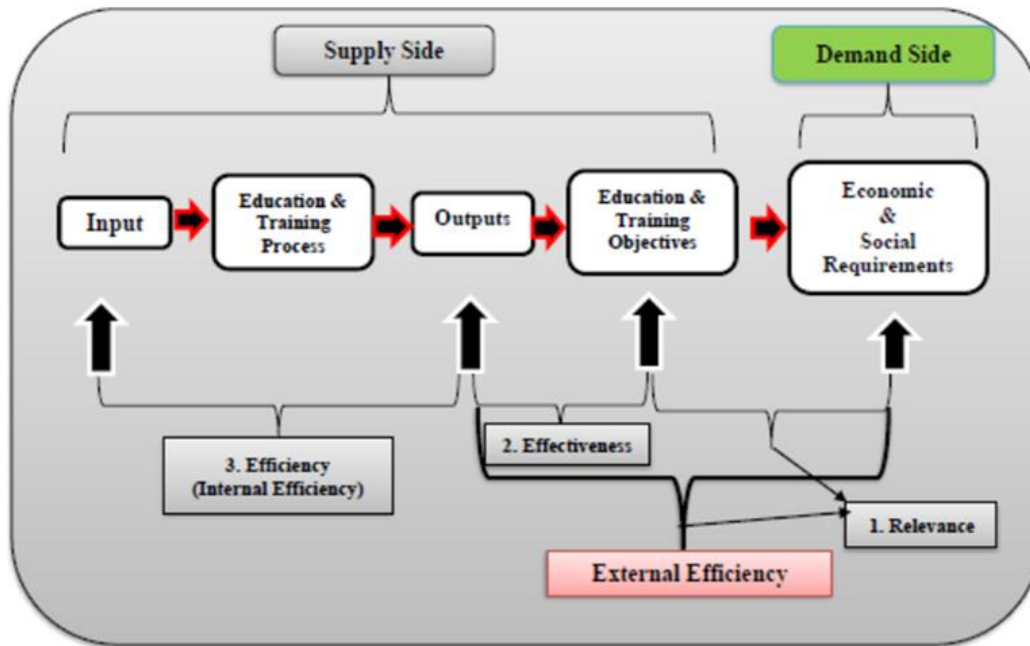
Firstly, I present a review of section 2.1, followed by 2.2, 2.3, 2.4, and conclude with 2.5

#### **2.1 EXPLORATION OF THE EFFICIENCY TVET PROVISION THROUGH THE USE OF AN ANALYTICAL FRAMEWORK**

One of the issues/questions addressed in this study is to gain a deeper understanding of the level of efficiency of the federal, state and private technical colleges in the provision of TVET across the six geographical zones in Nigerian. This is done in order to identify how we can improve and sustain their performance and quality through partnership involvement. However, one major challenge in determining the efficiency level of TVET provision, as

addressed in a report published by UNESCO-UNEVOC, is the different interpretation given to the concept of quality by training providers, trainers, administrators, and policy makers within the TVET system (Alemu, 2013). It was further reported that in some occasions, quality is interpreted to mean the level of customers' satisfaction regarding the effectiveness of the TVET system. On the other hand, it is considered that the establishment of TVET programmes is in line with the requirements endorsed by clients and stakeholders' expectation (ANTA, 1999). This disagreement in what quality means has made the evaluation of TVET provision difficult, due to the absence of a generally acceptable performance indicator for assessment (Alemu, 2013). According to Wahba (2014), quality means the prerequisite for sustainable development in our societies. Similarly, Wahba (2014) concludes that there is no generally accepted indicator for measuring quality in the TVET system due to the complexities arising from a consensus about the aspects of quality and the expense and amount of resources required to collect and process the necessary data.

According to Alemu (2013) in a report published by UNESCO-UNEVOC, the concept of 'quality' is not new, but different descriptions are accorded to it by training providers, trainers, administrators and policy makers within the TVET system, and this has also affected the measures adopted in determining it (quality). It was noted that the issue of a generally agreed indicator for the assessment of TVET quality has been left unresolved due to disagreement among scholars in the TVET system (Alemu, 2013). Similarly, Wahba (2014) concluded that there is no generally accepted indicator for measuring quality due to the complexities in the TVET system. Slamet (2014) argued that proper monitoring and evaluation of systems can be carried out if we are all clear about the conceptual constructs and tools to be used. Thus, the use of valid and robust evaluation and monitoring instruments and indicators, will be our concern in exploring the efficiency of the above mentioned TVET systems in Nigeria. With these views in mind, an analytical framework for evaluation of the TVET system, with a focus on relevance, effectiveness and efficiency, was adopted; however, the only aspect that was applied in the current study is that of efficiency (internal efficiency).



**Figure 2. 1: Analytical framework for evaluating TVET relevance, effectiveness and efficiency**  
(ADB, 2008, p. 97)

As can be seen in Figure 2.1 above there are three criteria to be considered when evaluating TVET provision, namely:

- relevance (economic and social),
- effectiveness (quality of instruction, together with organisational and management effectiveness) and
- internal efficiency (IDEAS, 2008, p. 2),

From Figure 2.1 above, the input, education and training process, outputs together with education and training objectives are all encapsulated on the *supply side*, whilst economic and social requirements are parts of the *demand side*. Thus, the supply side is referred to as the internal efficiency, whilst all that transpires on the demand side is known as external efficiency. It is also evident in the figure that internal efficiency is seen as the utilisation of inputs such as the education and training process that results in the output. For the purpose of this study, the focus was to determine what transpires at the supply side, which is the internal efficiency of TVET provision in Nigerian technical colleges. For this purpose, there is a need to define internal efficiency. The internal efficiency is defined as:

- A measure of how economically resources/inputs such as funds, expertise, and time among others are converted to results.
- The ability to perform well or to achieve results without wasted resources, efforts, time or money.
- When greater efficiency is achieved where the same amount and standard of services are produced for lower cost, if more useful activity is substituted for less useful one at the same cost or if needless activities are eliminated (IDEAS, 2008, p. 2).

One common feature that supports the above definition of internal efficiency, as offered by IDEAS (2008), UNESCO (n.d) and ADB (2014), is the focus on the optimal use of resources (inputs) in achieving results. However, in UNESCO and ADB, the type of resources was not specified.

Consequently, with the above definitions of efficiency, performance indicators to measure efficiency in government and non-governmental TVET which produced seven facets of interests and their corresponding 47 indicators were developed by Infotechs IDEAS (2008). These seven facets of interests include:

1. Trainees
2. Staff Utilisation
3. Training Courses
4. Training Facilities and Utilisation
5. Financial Performance
6. Performance Management, and
7. Service Facilities (IDEAS, 2008, pp. 2-3).

These seven facets of interests and the accompanying 47 indicators were used as a guide to develop the data collection instrument in this study (questionnaire-*appendix A*) which shows the facets of interests and their description of indicators, definitions, rating scales and sources of data. This instrument was used to gauge the efficiency of TVET institutions. Thus, a linear relationship between indicators and facets of interest was postulated. Linear relationships mean that each of the performance indicators is believed to designate the descriptive explanations of the specific facets of interest they accompany, as stated in IDEAS (2008). The implication is that the alteration of the individual efficiency of a performance indicator will reflect in the overall efficiency of that specific facet of interest within the same domain. The efficiency value



of each facet of interest is considered the arithmetic average of the values of indicators, and the index of efficiency of an institution is taken to be the arithmetic average of the values of the seven facets (IDEAS, 2008, p. 8).

This instrument was piloted and used Infotechs Ideas for the evaluation of TVET provision of government and non-Governmental institutions (IDEAS, 2008). Findings from its application showed that the seven facets of interests namely: trainees, staff utilisation, training courses, training facilities and utilisation, financial performance, performance management, and service facilities, with their corresponding 47 indicators (*appendix A*), were capable to gauge the efficiency of TVET provision.

Consequently, what informed my selection of the analytical tool for this study is premised on the following:

- It addresses the issues raised in this study which focuses on understanding the efficiency of Federal, State and Private technical colleges in Nigeria.
- The constructs contained in the analytical tool such as efficiency, facets of interests and performance indicators are related to what the study intends to measure.
- The instrument has been tested and confirmed capable of gauging the efficiency of TVET provision (IDEAS, 2008, p. 8).

The analytical framework was used in the third research question – Phase 2 of the Preliminary Study to evaluate the internal efficiency of TVET provision in Nigerian technical colleges using a questionnaire which analyses the following facets of interests namely:

- Trainee
- Staff Utilisation
- Training Courses
- Training Facilities and Utilisation
- Performance Management
- Financial Management; and
- Service Facilities.

The above section presented the analytical tool for Phase 3 of the preliminary study. The main focus was to evaluate the internal efficiency of TVET provision in Nigeria technical

colleges. In the next section, a review of the theoretical framework which was used in exploring partnership in Phase 1 and 2 of the Main Study is presented.

## **2.2 EXPLORATION OF PARTNERSHIPS THROUGH THE USE OF THE TRIPLE HELIX MODEL (THM)**

The theoretical framework employed in the study was used to interrogate the findings in Phases 1 and 2 of the Main Study. The theoretical orientation of this study is hinged on the work of Etzkowitz and Leydesdorff – the Triple Helix theory which was popularised after a conference in Amsterdam in 1996. Ever since the emergence of the theory, there have been several evolutions that characterised its existence. Etzkowitz and Leydesdorff (2000) attribute the modifications undergone by the Triple Helix to the evolution of the innovation systems and the current conflicts over which path should be taken in the academia-industry relations as reflected in the changing institutional arrangements of academia-industry-government. The historical evolution that characterised the Triple Helix theory of equivalent and overlapping institutional spheres emanated from two opposing viewpoints namely: Triple Helix I, otherwise known as the Etatistic Model, and Triple Helix II, referred to as the Laissez-faire Model” These two stages of evolution are reviewed below.

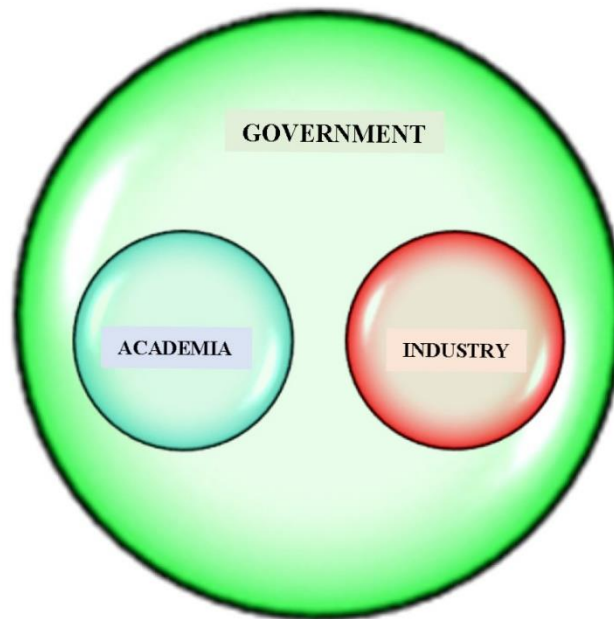
### **2.2.1 Historical Progressions of the Triple Helix Model (THM)**

As mentioned earlier, several developments have trailed the Triple Helix Model ever since it was popularised by Etzkowitz and Leydesdorff. These improvements are reviewed in the next section beginning from the first Evolution-Triple Helix I to the most recent, Triple Helix III.

#### **2.2.1.1 First Evolution: Triple Helix I/ Etatistic Model**

The first existence of the Triple Helix theory was designated the Etatistic Model. At this first stage, the institutional configuration consists of three distinct spheres representing academia, industry and government. However, according to Etzkowitz and Leydesdorff (2000), both academia and industry are encompassed within the government sphere as depicted in the figure below, while the government plays the lead role by way of directing the relations between academia and industry. As argued by Etzkowitz (2003), nations with systems reflecting a robust nature of this type of model include the former Soviet Union, together with some European and Latin American countries, in a context when government-owned industries

are predominant. The implication is that in the countries listed above, government has the upper hand in directing the activities of the two other institutions-academia and industry, whilst the latter depends on the former for assistance.



**Figure 2. 2: Etatic Model of university-industry-government relations**

(Etzkowitz & Leydesdorff, 2000)

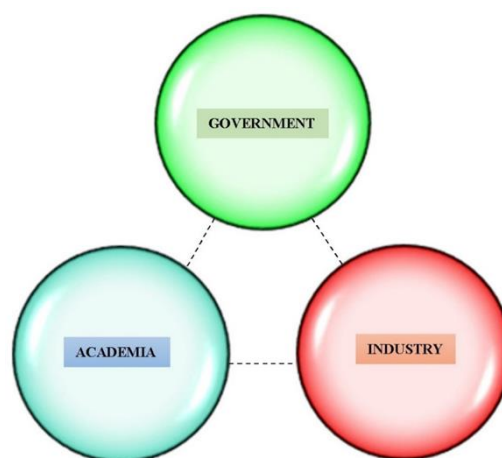
Etzkowitz (2003) contended that a model that exemplified this type of relationship was provided by the Argentine physicist Jorge Sabato. He proposed a top-down model of development, where the government played a lead role in coordinating industry and academia in their internal and external interactions with each other, moving beyond the already known government's role of separate institutional coordination to promote technology development (Dos Santos & Francasso, 2000). A reflection of this type model is seen in Brazil's Science and Technology policies of the 1970s and early 1980s, when government championed large-scale technology projects and raised the level of research at universities in order to support the creation of new technological industries such as computer and electronics, in tandem with regional advancement (Etzkowitz, 2003). Similarly, in Europe, the model is considered in terms of companies that are to be national leaders in specific areas, in the likes of Bull

Computer Company or Aerospatiale in France (ibid). According to Etzkowitz (2003), the paramount role of the university in this model is to provide trained persons who will work in either the government or industry. He also remarked that the university may conduct research, but the creation of new enterprises is not encapsulated within its jurisdiction operation. However, Mustar and Laredo (2002) argued that in France there have been transformations in expectation as regard the classic statist regime. This Etzkowitz (2003) described as the ideological gateway created by academic associations for the exchange of ideas about Brazil's future during the military era, which resulted in the origination of the incubator movement.

In the next section, I present a review on the second evolution of the Triple Helix model.

### 2.2.1.2 Second Evolution: Triple Helix II/ Laissez-Faire Model

The emergence of Triple Helix II, otherwise referred to as the laissez-faire model, was a product of a search for an alternative to curtailing the dominant role of the government in the Etatistic Mode 1 (Etzkowitz, 2003). The laissez-fair model comprises of three separate institutional spheres that act competitively rather than collaboratively. According to Etzkowitz, (2003) the strict separation in institutional arrangement, as noticeable in the lasses-fair model, results in narrow definitions of their respective roles, inflexible limits, and high principles for justifying collaboration among institutional spheres. In real situation, these institutions often have closer interaction than as depicted in the Laissez-Faire model of academia, in other words, as industry and government operating as distinct entities without connection to each other (Etzkowitz, 2003). The configurational arrangement of the model is depicted in the figure below.



**Figure 2. 3: A “laissez-faire” model**  
(Etzkowitz, 2003)

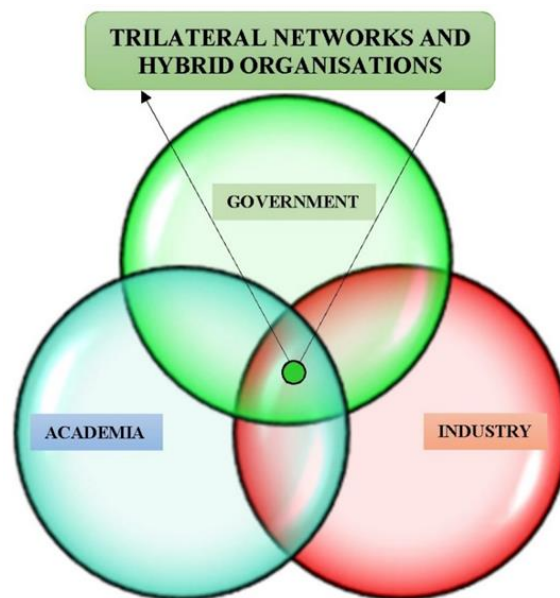
Ranga and Etzkowitz (2013) contended that the Laissez-Faire model is characterised by limited government intervention in the economy, as in some countries in United States and Western Europe. According to Etzkowitz, (2000), the role of the university in the Laissez-Faire model is restricted to the delivery of basic research and trained persons, whilst its role in relation to industry is to supply knowledge in the form of publications and graduates who indirectly apply the knowledge gained in the university to their new jobs. The prerogative to source and apply knowledge from the university solely depends on industry, which does that without much assistance and coordination (Etzkowitz, 2003). The role of the government in the Laissez-Faire model is strongly regulated, except in the case of market failure. In such situation, Etzkowitz (2003) argued that an intervention from government is received in the provision of financial backing to support research at the academic institution. Interaction amongst institutional spheres in the Laissez-Faire model only occurs through robust and secured boundaries and mostly through intermediaries such as the Research Corporation, an independent non-profit organisation which acknowledges patenting research and licenses it to firms (Etzkowitz, 2000). It is believed that direct interface between industry and academia is inappropriate, and as such there is a need for a middle man if there is any need for interaction (ibid).

According to Etzkowitz and Leydesdorff (2000), both the Etatistic and Laissez-Faire model seem to generate some issues in their respective configurations, as they have engendered some awareness. They further remarked that the Etatistic Model, in its discouragement to innovation and little accommodation for “bottom up” initiatives, was regarded as a failed model (Etzkowitz & Leydesdorff, 2000). However, the introduction of the Laissez-Faire model only served to limit the ascendancy role played by the government institution in the first model (Triple Helix I). By implication, both models are characterised by some inadequacies and are unable to birth the type of technological development that can transform a nation. These errors inherent in both Triple Helix I and II led to the emergence of the Triple Helix III Model of academia-industry-government relations, which is viewed a better alternative that can create room for innovation.

In the next section, I present on review on the Triple Helix of academia-industry-government relations.

### 2.2.1.3 Third Evolution: Triple Helix III of Academia-Industry-Government Relations

As mentioned in the previous section, the birth of Triple Helix III of University-Industry-Government relations, which proposes a trilateral relationship between the three spheres, was triggered by the inadequacies of the first two (Triple Helix I and II) models. According to Ranga and Etzkowitz (2013), the potential for innovation and economic transformation in a knowledge-based economy depends on a more prominent role for academia, in collaboration with industry and government, to generate hybrid organisations that enhances the production, exchange and application of knowledge. The figure below highlights the typical components of the trilateral links and hybrid organisations inherent in the Triple Helix III model.



**Figure 2. 4: Triple Helix Model of university–industry–government Relations**

(Etzkowitz & Leydesdorff, 2000)

According to Etzkowitz (2003), the Triple Helix thesis proposes that interactions between academia, industry and government is the key to improving the conditions for innovation in a society where knowledge is the driving force. He further remarks that the role of industry in this type of arrangement is that of production; whilst the government is the source of contractual relations that guarantee stable interaction and exchange, and academia is the source of new knowledge and technology. Etzkowitz and Leydesdorff (2000) argued that the cardinal purpose of the Triple Helix III model is to realise an innovative environment, through a

reciprocal interaction between academia, industry and government, where each of these institutional spheres attempts to enhance the performance of the other (Etzkowitz, 2003). According to Etzkowitz and Leydesdorff (1997) the Triple Helix of trilateral institutional relations is a model for interpreting the dynamic role of academia in a knowledge-based society, which is based on participatory relationship with industry and government in a developed market. In stimulating innovation in a knowledge-driven society, Leydesdorff (2000) contends that academia, in collaboration with industry and government, operates on the same pedestal. He further argued that universities should move beyond their traditional role of teaching and basic research to innovative applied research, which can birth wealth creation and entrepreneurial activities. According to Etzkowitz, Rang and Zhou (2007), Triple Helix III, as depicted in the figure above, encompasses three basic fundamental features namely:

- A more *prominent role for the university* in innovation in relation with industry and government;
- A *trilateral collaborative relationship* amongst the institutional spheres, whereby the outcome of a given policy results from the agreement of the three institutions rather than being a role responsibility of one of the institutions; and
- An *assumption of each other's role* in conjunction to fulfilling their traditional roles.

The essence of the above outlined features, as captured in Triple Helix III, is to stimulate innovation that will transform a nation's economy. According to Etzkowitz (2003), these three features inherent in the Triple Helix of Academia, industry and government relations undergo four prominent stages for the purpose of stimulating a sustainable innovation. These consist of:

- Internal transformation within each of the institutional organisations;
- Influence of one organisation upon another;
- Hybrid organisation resulting from the trilateral networks and interactions of the three organisations; and
- A recursive influence of the Triple Helix network both on the helices from which they developed and on broader society.

The Triple Helix thesis is such that academia is assigned a prominent role due to its contributions to a society in which knowledge is a panacea to the economic advancement of the nation. It was observed that in some countries of the world, there seem to be mechanisms in place that reflect some aspects of the Triple Helix of academia, industry government

relations (Etzkowitz & Leydesdorff, 2000, p. 112). According to them, the aim is to realise an innovative environment that consists of university spin-off firms, trilateral initiatives for knowledge-based transformation, tactical alliances between firms and other institutional players, government laboratories, and research collaborations. In this type of institutional arrangement, the role of government is to encourage, rather than control either through policy, direct or indirect financial assistance such as reflected through the Bayh-Dole Act in the USA (Etzkowitz & Leydesdorff, 2000, p. 112).

#### **2.2.1.4 The Limitations of the Use of THM for this Study**

According to Ranga and Etzkowitz (2013), most literature on Triple Helix III treats the three institutional configurations – university, industry and government – as ‘block’ entities without a description of the component actors in each of the organisations. This, they argue, has hindered some specific ways in which the actors’ institutional identities, missions, objectives, and needs, among others, influence the interaction dynamics. However, Rodrigues and Melo (2010) describe the simplicity of the model as appealing to policymakers; it may help mobilise local innovation agents, bring legitimacy to policy efforts and improve coherence between different policy strands involved in innovation. On the other hand, Ranga and Etzkowitz (2013) contended that in a complex situation where innovation stakeholders are more mature and have attained more complex forms of interaction, the simplified nature (block entities) of the Triple Helix is no longer sufficient. It is in that regard that Ranga and Etzkowitz (2013) argued that a more internally distinguished approach of the Triple Helix actors (academia, industry and government) is essential to understand their specific behaviour and contributions to a complex division of labour in the production and use of knowledge for innovation.

Interaction in the Triple Helix model configuration is conceptualised as a boundary between academia, industry and government in a knowledge-driven society (Etzkowitz & Leydesdorff, 2000). However, with the emergence of the knowledge economy in conjunction with the growing intricacies and modification of modern economic systems (MacGregor et al., 2010; Ivanova, 2014), there is an emergence of a quadruple helix structure which takes into consideration the place of end-users as major stakeholders in an open innovation process (Carayannis & Campbell, 2012; Leydesdorff, 2012). This is because the strict confinement of the Triple Helix III model, which is a trilateral network to accommodate only three institutional spheres, limits its application in certain context, as the actors need to stimulate innovation. Mehta (2004) and Ivanova (2014) argued that in some scientific disciplines and sectors, the



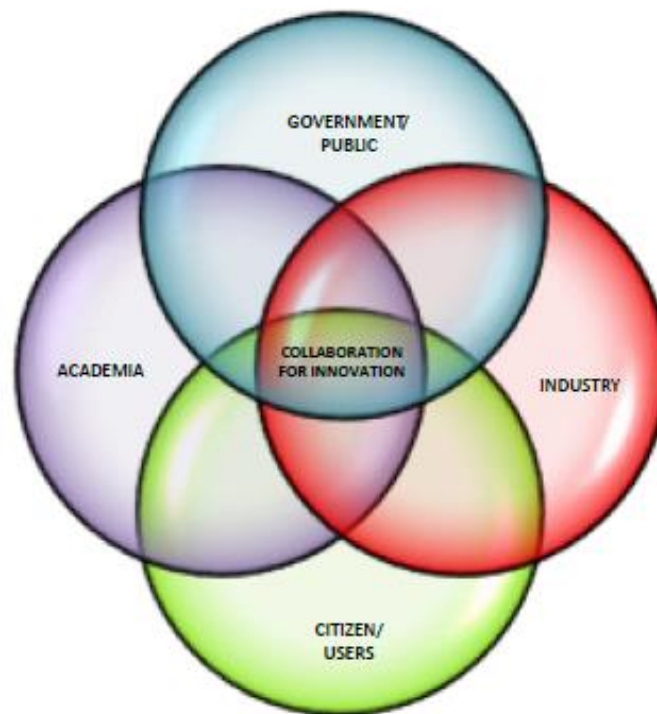
role of an ‘extended peer user community’ to support innovation has long been acknowledged since the early 2000s.

According to Daniel, Schwiser and McCalla (2003), research has shown that studies on trilateral partnerships and distributed networks such as obtained in the Triple Helix of academia, industry and government are limited. The criticism is that it fails to address many complex problems such as TVET provision. Hence, there is a need for collaborative methodologies such as obtainable in the quadruple helix model to address such complex problem as TVET provision (Jerome, 2011). According to Snyder and Briggs (2003) many domestic and global social problems in education and job creation, among others, call for flexibility and savvy blending of expertise that transcend traditional organisational and sectoral boundaries. The Triple Helix theory, which is a form of public-private arrangement, may not be sufficient to solve the complex evolving problem of effective TVET provision in Nigerian TCs. According to Arnkil, Järvensivu, Koski, and Piirainen (2010), when it comes to the application of the Triple Helix model as an innovation approach and innovation policy instrument, there are some inherent limitations in its configuration. For instance, Etzkowitz and Klofsten (2005), in their examination of the THM at the regional level, contend that relatively few regions have exhibited the “self-renewing capabilities” created by the Triple Helix model, which is intended to be a continuous flow across technological paradigms, moving beyond creative destruction to creative reconstruction.

Yawson (2009, p. 9) argued that the THM of academia, industry government relations is missing an important helix, the public. According to Yawson, developments in biotechnology and nanotechnology are hampered by the virtual absence of the public. He further contends that the creation of knowledge is no longer dependent on one discipline, rather it is now trans-disciplinary, more reflexive, non-linear, complex and crossbred (Yawson, 2009). Furthermore, the inclusion of public interest (the fourth helix) becomes critical since scientific knowledge is increasingly measured by its social strength and inclusivity (ibid). I agree with Yawson, that there is need for the inclusion of the fourth helix. For instance, in the case of TVET, which focuses on paid and self-employment, it becomes imperative to include the fourth helix which embraces the users of the self-employment aspect of the programme in the likes of the communities and individuals, among others. In furtherance of Yawson’s (2009) argument, he remarked that the fourth helix highlights new discoveries and innovations that improve social welfare such as eco-innovation. Thus, there is a need to explore the affordances of the quadruple helix innovation model and what it can offer in improving TVET provision.

### 2.3 EXPLORATION OF PARTNERSHIPS THROUGH THE USE OF QUADRUPLE HELIX INNOVATION MODEL

The Quadruple Helix Innovation model (QHIM) is an institutional configuration between the government, academia, industry and citizens working in collaboration to drive structural changes far beyond the scope of what any one organisation could achieve on its own (Curley & Salmelin, 2013, s. 13). The figure below depicts the structure of the quadruple helix innovation model.



**Figure 2. 5: Quadruple Helix Innovation Model**

(Carayannis & Grigoroudis, 2016, p. 37),

According to Carayannis and Grigoroudis (2016, p. 37), the QHIM bridges ecology with knowledge production and innovation. It was further remarked that the most significant element of the QHIM, apart from an active civil society, is the resource of knowledge, which circulates between social subsystems and hence affects innovation and know-how in a society (Carayannis & Grigoroudis, 2016). Knowledge exchange and interaction in the QHIM takes place between the following four spheres, namely education system, economic system, political system, and the civil society/users (Carayannis & Grigoroudis, 2016, p. 37). Each of these systems and its components is outlined below.

**Academia (Education System):** The education system referred to as academia, universities, higher education institutions, and schools (human capital)

**Industry (Economic System):** The economic system consisting of industry/industries, firm, services, and banks (economic capital).

**Government (Political System):** This formulates the direction in which the state/country is heading in the present and future, as well as the laws [usually government] (political and legal capital).

**Civil Society/Users:** This is described as media based which integrates and combines two forms of capital: culture-based public-tradition, values etc. (social capital) and media-based public-television, internet, newspapers (information capital).

According to Carayannis and Grigoroudis (2016) the focus of the QHIM is on innovation users, and it encourages the development of innovation that is relevant for civil society. By implication, the aim of whatever innovation that emanates within the QHIM is to bring satisfaction to the end-users. I agree with Carayannis and Grigoroudis (2016) that the heart of TVET provision is making its recipients self-reliant. The greatest beneficiaries of such services that are delivered by self-reliant TVET graduates are the community and its environs, that is, the civil society or users of such services. Hence, to satisfy these users, there is a need to carry them along in determining what constitutes the technical college programme.

The types of challenges identified in TVET provision in different parts of the world, especially within developing countries, demand a framework that takes into consideration the contextual stakeholders capable of ensuring efficient delivery within the system. Some of these challenges identified reflect the implicit standards permeating innovation system models (Danilda & Granat Thorslund, 2011), such as the THM of academia, industry and government relations, where other actors outside the aforementioned are not expected to be of importance (Parken & Rees, 2010)

The choice of the QHIM as a framework suitable for this study is premised on the fact that it allows for the involvement of institutions such as non-governmental organisations, private individuals, faith-based organisations and the community, among others (end-users), in fostering innovation, which in this case is referred to as efficient TVET provision. Triple QHIM seem to offer a better approach to a high quality training, the reasons being that the model consists of the major key players within the TVET sector globally.

In this study, the four Helices as obtained in the QHIM are interpreted as follows:

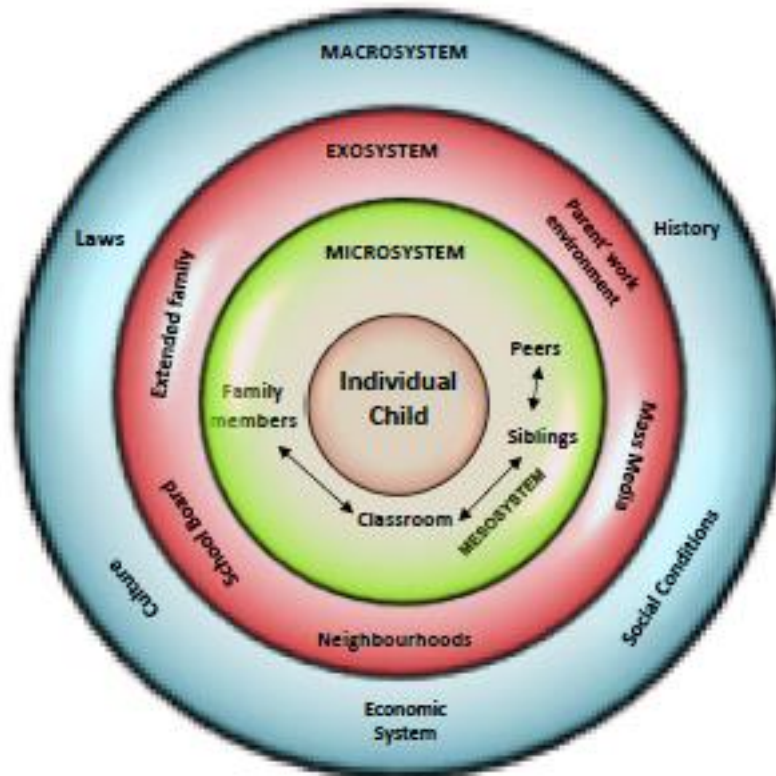
- **Academia:** the educational institution (technical college), heads of department, teachers and students.
- **Industry:** Industry employers, private industry/Informal enterprise, and companies.
- **Government:** Government boards and agencies, representatives from such boards and agencies.
- **Civil Society/Users:** All stakeholders outside academia, industry, and government.

In this study, stakeholders representing the four helices of the QHIM were involved, so as to develop an efficient approach to quality TVET provision in Nigerian technical colleges. The theoretical framework was applied in the two phases of the Main Study to ascertain the types and nature of partnerships in existence.

However, the data from the findings show that collaboration between these stakeholders as represented in the QHIM is not on an equal footing, hence, the need for a theory that advocates for such level of interaction. Such level of interaction is particularly relevant to the Eco-social theory. This theory is explored in the next section.

#### **2.4 EXPLORATION OF REE PARTNERSHIPS THROUGH THE USE OF ECO-SOCIAL THEORY**

According to Eisenmann et al. (2008, pp. 3-4) the Ecological model as depicted in Figure 2.6 includes concentric rings describing the different societal and environmental factors that influence human activity patterns as a set forming a nested environment. The “physiologic core” of the model incorporates the genetic, physiologic, and socio-cultural forces that shape our identity. This core is surrounded by Microsystem, followed by the Exosystem, and Macrosystem. The Microsystem is the immediate environment the child communicates with, being constituted by family members, sibling, teachers, and peers, among others. The Mesosystem is the relationship that exists between the various microsystems such as the relations that parents have with a child’s siblings and teachers that affect the target child. The exosystem are the child’s semi-immediate environment, that is, the surroundings which the child does not usually relate with directly, namely school board, extended family, neighbours, mass media, and parents work environment. Then, the macrosystem is the larger societal level which shapes what happens to the child. Its constituents include; social norms, laws, culture, economic system, social conditions, and history.



**Figure 2. 6: Bronfenbrenner’s Ecological Model describing the set of nested environmental influences on a child**

(Eisenmann et al., 2008)

Hence, in the context of this study, the model represented above was used to interpret the type of relationship that exists between stakeholders in delivering an efficient TVET programme at the technical college level in the order of the findings. Hence, the theory illuminated how interaction takes place amongst stakeholders in TVET provision, but may not necessarily imply the order of relationships as obtained in the original nature of the ecological model as provided by Bronfenbrenner. As mentioned earlier, the limitations of the THM and QHIM in exploring the phenomenon of the study led to the introduction of the EST which aided the understanding of the different levels of interaction amongst the various stakeholders needed for TVET provision. These levels are thus represented using the microsystem, exosystem, and macrosystem in Figure 2.6 above.

The “physiologic core” of the model includes the genetic, physiologic, and socio-cultural forces that shape our identity. If one applies this model to academia, and replaces the ‘individual child’ with the members of academia (technical college trainers and students the

identity of academia is shaped by its environmental factors otherwise known as the microsystem, exosystem and macrosystem. Amongst the various system levels, the macrosystem seems to have the greater influence of what shapes the identify of academia. In other words, both the exosystem and microsystem have influence on academia but not compared to that of the macrosystem.

A study conducted by Geldenhuys and Wevers (2013) used eco-social theory to investigate the ecological aspects that influence the implementation of Inclusive Education (IE) in mainstream primary schools in the Eastern Cape, South Africa. The findings are summarised as follows; the implementation of IE has been hindered by reluctance of role players to embrace IE within the different levels of the ecological system. For instance, at the microsystem level, there are challenges related to lack of parental involvement (mesosystem level) in the development of their children. Also, the school itself lacks the constructive effort in creating and maintaining effective positive partnership that involves the parents in all aspects of their children's development. Furthermore, at the exosystem level, the school management team do not display sufficient commitments to the management of learners. That leads to barriers to learning in mainstream primary schools. However, at the macrosystem level, the study revealed that the Republic of South Africa provides for the democratic operation of all institutions, thereby guarantees non-discriminatory and equal access to quality education for all learners. The theory enabled the discovery of poor management of learners who experience barriers to learning through its use.

Similarly, a study was conducted to understand factors affecting technology uses in schools with a focus on ecological perspectives. The Eco System Theory was employed. The findings highlighted the teachers' niche in the ecosystem, teacher interaction, teacher-computer disposition for compatibility, and opportunities for mutual adaptation, each referred to as part of the social dynamics relevant to technology implementation (Zhao & Frank, 2003). The study concluded that an ecological perspective can provide a powerful analytical framework for understanding technology user in schools, which has policy implications for implementing innovation in schools.

## **2.5 DISCUSSION AND CONCLUSION**

This chapter presented the frameworks that guided the study. The first section presented a review on the analytical framework of relevance, effectiveness and efficiency used in assessing the efficiency of TVET provision. It outlined the analytical framework, comprising

seven facets of interests and 47 linear indicators, used in evaluating the efficiency of TVET provision in technical colleges across four geopolitical zones of Nigeria, namely South-South, North-Central, South-West, and South-East. The second section reviewed literatures on the Triple Helix III model of academia-industry-government relation. The review showed that the THM is limited in that it does not accommodate institutional spheres other than academia, industry, and government. This led to the emergence of the QHIM. The QHIM is an advancement of the THM, in that its configuration includes the fourth sphere otherwise known as civil society/users. However, this model promotes the equal interaction amongst the four spheres represented, and this on its own constitutes another limitation associated to the QHIM. Therefore, this led to the introduction of the fourth framework which promotes interaction amongst stakeholders, but at different levels. It is known as the EST. The fourth section was based on the use of the EST in the exploration of REE partnerships, and was later adopted for the development of a sustainable model for REE partnership in a quality TVET provision in GTC-Port Harcourt.

## **CHAPTER 3**

### **REVIEW OF RELATED LITERATURE**

Central to the realisation of the 2030 agenda of the Sustainable Development Goals (SDGs) is education. Education is essentially articulated as a stand-alone goal four (SDG4), which consists of seven outcome objectives with Quality Education as the number one target. Technical and Vocational Education and Training (TVET) being an aspect of education enlisted in target 4.4 of Education 2030. SDG4 is saddled with the responsibility of increasing the number of youth and adults who are equipped with relevant skills, including technical and vocational competencies, for employment, decent jobs and entrepreneurship (UNESCO-SDGs, 2017, pp. 7-8, 11). This according to the report will only be possible through partnership with all stakeholders concerned (ibid). However, it is imperative to note that irrespective of the importance and the right of place attached to TVET as one of the instruments to achieve the lofty goals of Education 2030 in the SDGs, this aspect of education in Nigeria has been grossly neglected and little emphasis placed on its provision (Akanbi, 2017; Jacob, 2006). Such neglect as faced by TVET provision has led to the production of graduates without the necessary skills, which invariably has resulted in youth unemployment in the country. Within the literature, these problems are attributed to a mismatch between what is taught and what is expected.

In view of the preceding context, this chapter is set to provide an insight on the need to change Africa's approaches, attitudes and priorities concerning TVET, present a historical perspective of TVET development in Nigeria over the last 50 years, and a critique of the target of educational expansion in Nigeria for employment rather than employability. Furthermore, a review on contemporary challenges to quality TVET provision, and how it has been addressed regionally and in Nigeria, focuses on what constitutes good TVET reform, the role of good TVET programmes, and the synergies for sustainable economic reform and development.

#### **3.1 TVET IN AFRICA: THE NEED FOR CHANGE IN APPROACHES, ATTITUDES AND PRIORITIES**

TVET in Africa has long gained recognition as one of the key drivers of human capital development and economic advancement (World-Bank, 2010), alongside enhanced basic education that generates knowledge and skills more broadly (Takei, 2016). It is well known that Sub-Saharan Africa remains the poorest and most underdeveloped region of the world (Lolwana, 2017), when judged in terms of their Human Development Index as provided by United Nations Development Programme [UNDP] (2014). This has been attributed in part to



the low quality of education, specifically the gross neglect and low emphasis accorded to TVET provision in the region, which is evident in the level of funds allocated to the sector by the State (Lolwana, 2017). Furthermore, the provision of this aspect of education, according to the African Union (n.d, pp. 12-16), has been characterised by fragmented structuring, an unregulated traditional apprenticeship system, the growing importance of private TVET centres, supply driven TVET systems, and a mismatch between supply and demand for skills. Others include the low prestige and attractiveness of TVET, gender-based inequality of opportunity, geographic and economic disparities, training of low quality that is ineffective, inadequate funding and weak policy implementation structures, despite promising initiatives at national level, policy and legislation. These issues, as noted by the African Union (n.d), have given rise to the high level of youth unemployment experienced by different countries within the continent.

### **3.1.1 Youth Unemployment: The African Perspectives**

As remarked by Afeti (n.d), the primary aim of TVET is the acquisition of employable skills for the world of work. Without job-related skills, young people and adults cannot tap into the benefits offered by employment opportunities, such as decent income. According to Afeti (n.d), youth unemployment in Africa has been a major development issue. As remarked by Garcia and Fares (2008), out of a total youth population of about 200 million, an estimated 95 million young men and women in sub-Saharan Africa are illiterate and are either unemployed or engaged in precarious jobs such as street vendors and poorly remunerated workers in irregular seasonal employment. Although youth within the age range of 15-24 years constitute 40% of Africa's total population, they account for 60% of those without jobs (AfDB/OECD, 2010). According to African Economic Outlook [AEO] (2012) over 20% of the youth population are unemployed, and one of the major contributing factor to this this is that these young people lack the necessary skills to gain productive employment. According to the African Progress Panel (2012), there are about 173 million Africans between the ages of 15 and 24 years, most of whom have entered the world of work from childhood with limited education and skills for decent employment and jobs. It is estimated every year that about seven to ten million young, inadequately skilled Africans make a difficult transition to the labour market, which leads to low productivity, poverty-level incomes and high levels of unemployment (AfDB, 2013; Afeti & Adubra, 2014). Afeti (n.d) contends that the large number of youth who are not in any form of education, employment or training does not only portray the inefficacy of national education and training but also signpost major security

concerns. He further remarked that as recent history of conflicts and wars in Africa amply demonstrates, youth without jobs are prone to be recruited into the armed movements and criminal gangs. Adams (2009) and World Bank (2008) concur to this by adding that they are also candidates for illicit activities such as drug trafficking and cybercrime.

### **3.1.2 Skills Mismatch: The African Context**

Afeti and Adubra (2014) argued that it is contradictory that employment generation in the formal sector of even the rapidly developing economies has not kept pace with the growing numbers of new job seekers. According to IMF (2012), Africa plays host to seven out of ten fastest developing economies, yet the markets are not able to absorb new entrants. Afeti and Adubra (2014) contended that while there are many reasons why the market fails to absorb new entrants, it was remarked that most of these graduates are deficient in the skills required for employment (Afeti & Adubra, 2014).

According to Takei (2016), being equipped with the necessary skills is a pre-requisite for youth and adult to take part meaningfully in the economy towards the achievement of sustainable livelihood. The issue of youth unemployment in Africa is traceable to the inherited conventional type of education at independence, which relegated TVET programmes to the background. However, many countries have since taken steps to revitalise their TVET systems (Afeti & Adubra, 2014).

It is widely noted that the formal sector cannot meet the demand of equipping young people with the skills needed by the world of work, and it (formal sector) also lacks the awareness of lifelong learning (Afeti & Adubra, 2014; Atchoarena & Esquieu, 2002). Reasons being that most training from the formal sector is not demand driven and is inflexible due to its rigid supply-driven curriculum. Besides, TVET programmes in the formal setting tend to be theoretical and focuses on certification rather than the acquisition of practical skills in demand in the labour market.

Therefore, the efficiency of the training as well as employability are very important issues in Africa and may be one reason for the persistent high level of unemployment (Olawale, 2018). According to International Monetary Fund [IMF] (2012), the high growth rates experienced in the Gross Domestic Product (GDP) in the continent have been driven largely by some level of specialised technical competencies that education and training in that are rarely found in African countries. Therefore, there is need for a revitalised TVET that prepares

young people with skills that guarantee them sustainable livelihood either in paid or self-employment.

### **3.2 AN OVERVIEW OF THE HISTORICAL ANTECEDENTS OF TVET DEVELOPMENT IN NIGERIA**

The commencement of TVET in Nigeria had a slow beginning and its development was impaired, compared to conventional education which had voluntary agencies as its pioneers. According to Fafunwa (1974, p. 195), this was partially attributed to its capital intensive nature in terms of staff and facilities required, and because the focus of ‘the Christian Missionaries as it was then was mainly on training people to read the bible rather than turn screws and prime water-pumps’. More so, the basic curriculum at schools focused on three main areas, namely Reading, Writing and Arithmetic otherwise referred to as ‘3Rs’ (Ndubueze, Iyoke, Okoh, & Beatrice, 2015). Hence, the Western Education which was introduced in 1842 never stressed the acquisition for practical skills that will make its recipient reliant, rather its purpose was to equip whoever acquires it the right of place to serve missionaries (Akanbi, 2017). Prior to the introduction of Western education, there had been the learning of practical education through the apprenticeship system, but this was gradually eroded due to its exclusion from the education practised by the missionaries. The exclusion of the then-existing apprenticeship practice culminated in the production of students with head knowledge, heart underutilised and without practical use of hands (Akanbi, 2017, p. 1). This outcome is contrary to Akinpelu’s (1981, p. 82) view that “the hand and the brain evolved together, and the liberal and conventional education, on the other hand must go together, inseparably, if violence is not to be done to the natural process of growth in man.”

In 1925, the Memorandum on Native Education in British Tropical Africa emerged, which was an off-shoot of the Phelps-Stokes Commission report, published in 1922, which showed the “appalling low government aid and the dubious quality of education” in Africa (Taiwo, 1980, p. 70). The Memorandum became the first broad principle set as a framework for education and gave prominence to the importance of TVET (ibid). It stressed that “education should be adapted to the mentality, aptitudes, occupations and traditions of the various people, conserving as far as possible all sound and healthy elements in the fabrics of their social life” (Taiwo, 1980, p. 70). However, in the words of Yakubu (2011), technical education received less attention from the government until the world economic depression in the 1930s, which made it wasteful for the colonial administration to continue bringing expatriates to meet its needs. This led to the establishment of training institutions by the

colonial administrations, to produce middle level technical manpower. Among the training schools established was the Yaba Higher College, which came into existence in 1932.

During the colonial period, there were three different types of educational systems operating concurrently in Nigeria, namely Traditional, Quranic, and Western. According to Imam (2012), each of these operated at a different pace, with differing growth of Western education. The western education as adopted during the colonial period by the British administrators consisted of four stages, namely primary, secondary, sixth form and higher education (Fabunmi, 2009).

In 1954, there was a change from the 8-6-2-3 to the 6-5-2-3 system of education by the British colonial administrators (Gusau, 2008). This change, represented as 8yrs of primary, 6yrs of post primary, 2yrs of higher school certificate and 3yrs of university education changed to 6yrs of primary, 5yrs of post primary, 2yrs of higher school certificate and 3 yrs of university education, was due to the clamour for self-governance and educational autonomy by Nigerians. This change led to the decline in the number of years spent in primary and post primary education respectively.

According to Taiwo (1980, p. 140), in 1960, the Ashby Commission report, titled "Investment in Education" emerged. This document stressed the importance of technical and commercial education and emphasised that it should be a compulsory part of the training components in primary and post primary schools, so that those who pass through it would develop an appreciation of manual and skilled labour. This recommendation from the report resulted in the establishment of a number of comprehensive high schools; although these institutions soon reverted to more traditional grammar-focused education systems due to lack of funding and adequate monitoring.

However, on attainment of independence in 1969, Nigeria became dissatisfied with the colonial form of education which could not answer to the needs of Nigerians and decided on a national curriculum conference that will deliberate on the needs and aspirations of Nigerians (Fabunmi, 2009). The conference was convened in Lagos by the Nigerian Educational Research Council (NERC) in September 1969 with three major considerations namely: necessities of the society; essential elements of the curriculum, and the importance of young people. The conference also considered the need to change from the British form of education that had no positive impact for citizens of the country (Gusau, 2008). Similar to the Ashby Commission report, the conference as part of its recommendation flagged the inclusion of

technical and vocational subjects which were conspicuously missing in the British form of education (Wodi & Dokubo, 2012).

### **3.2.1 Emergence of the First Education Policy in Nigeria**

As a follow-up, a seminar which brought together professionals from different interests groups, volunteers and external bodies within Nigeria was organised in 1973 to consolidate the gains of the National Curriculum Conference, and to deliberate on the nature of a national policy for a nation state like Nigeria (FRN, 2013). The outcome of the seminar was the first draft of the National Policy on Education in 1977. This policy laid the foundation of the 6-3-3-4 system of education, which was translated to mean 6yrs of primary education, 3yrs of junior secondary education, 3yrs of secondary education, and 4yrs of university education. According to Osami (2013) and Wodi and Dokubo (2012), the inception of the policy harmonised the system of education in the country with new concepts and ideologies, thereby giving prominence to TVET.

Consequently, the emergence of the first national policy on education in Nigeria in 1977 has given birth to revisions to policies in 1981, 1998, 2004, 2011 and 2013. The 2004 review was based on nine modifications of which the eighth was to reposition science, technical and vocational education in the scheme of national education for optimum performance (FRN, 2013). The most recent review to the 2013 edition of the policy was to update the previous editions and to also cater for recent development in the context of the transformation agenda and ensuring strategic plans in education. These strategic plans in education have engendered a role for education as an investment for economic, social and political development; an aggregate tool of empowerment for the poor and socially marginalised groups, and an effective means of developing the full capacities and potentials of human resource (FRN, 2013, p. ii). Others include the development of a competent workforce through the acquisition of practical life skills relevant to the world of work as a veritable means of developing sound intelligent learning societies, fit and relevant to the 21<sup>st</sup> century (ibid). According to the policy, the achievement of all these can only be possible through strategic and collaborative partnerships with key stakeholders (FRN, 2013).

### **3.3 EDUCATIONAL EXPANSION IN NIGERIA FOR EMPLOYMENT RATHER THAN EMPLOYABILITY**

Educational systems in Nigeria have been criticised due to its ability to measure up with the recent trend of science and technological development (Oyebamiji & Omordu, 2011). Questions arise as to what use the Nigerian system of education is for a graduate who can creditably defend his/her certificate yet be unable to apply knowledge gained through the acquisition of such certificate in solving problems. Oyebamiji and Omordu (2011, p. 98) described a graduate who possesses a particular certificate in an aspect of education, but is unable to tackle problems within that area of specialisation as an 'educated illiterate'. According to them, such is not the calibre of graduates needed for the development of any nation. Oyebamiji and Omordu (2011) further contended that such situations, where a graduate can only present a certificate to be employed but does not have the necessary skills to accompany that certificate, implies an education system that is focused on qualifying its recipients for employment rather than equipping them with the right competencies. Dike (2009) described such situation as a focus on more theoretical programme than practical oriented training, which has the capability of equipping graduates with pragmatic skills. According to Zite and Deebom (2017), the revamping of educational policies of the 70s and 80s merely focused on the acquisition of certificates rather than the needed technical competencies. This has led to the invasion of most Nigerian youths and adults into the education industry with the view of obtaining mere paper certificates. This resulted to the growth in size experienced within the sector in the later part of 1970s and 80s, and was described in the Nigerian Education Sector analysis as an increase in size and not quality (Moja, 2000). These issues were attributed to the education for elevation through the instrumentality of examination, where certificates are acquired at all cost for employment, to the detriment of productivity via skills competency for productivity, thereby reducing the nation to a low output of goods and services, while it searches for expatriates from other counties (Oyebamiji & Omordu, 2011).

These situations, as mentioned above, has challenged the high expectations raised by various commission reports, policy reviews and international legislative interventions that have given prominence to TVET as an instrument to tackle the unskilled workforce within the Nigerian nation, as earlier advocated (Oyebamiji & Omordu, 2011; Zite & Deebom, 2017).

The result of this is seen in the high level of unemployment seen in the country. This Okoye (2017) and Okoye and Okwelle (2014) attributed to education for employment rather than for employability, due to the absence of necessary skills. The cause of unemployment was

also ascribed in Nigeria by Ibeneme (2007) and (Azubuike, 2011) to the limited emphasis placed on TVET programmes, compared to much preference on conventional general education. This is evident in the number of technical colleges and general education institutions across the six geopolitical zones of Nigeria. According to Eze, Mwaura, and Ngenda (2014) as well as Scitech Africa (n. d) there are about 155 technical colleges distributed across the six geopolitical zones, compared to 17,928 general education secondary schools. With such statistics, it is possible to conclude that much preference is given to mere certificate programme, and skill-oriented training is neglected (Akanbi, 2017). According to Oviawe (2015), in the 2009/2010 academic session, the enrolment of students in Nigerian TCs was 74,299 as against 6,625,943 for general education (Secondary Schools). However, it is worth nothing that even the few institutions established for TVET have thrived in the face of neglect, despite the challenges confronting its provision.

### **3.4 CHALLENGES TO QUALITY TVET PROVISION**

TVET provision within and outside Africa has been marred by huge uncertainties. For instance, in Asia, a study on the efficiency of both Governmental and non-Governmental institution revealed that most of the training centres operated below 96-100% (IDEAS, 2008). The low efficiency has been attributed to lack of adequate inputs such as funds, qualified training personnel, and training facilities, among others. In Africa, the case is not different, as revealed in the literature that issues such as corruption amongst stakeholders responsible for the implementation of TVET programmes (Kingombe, 2011; Rupp, 2012; Dike, 2013). Countries such as Ghana (Dasmani, 2011); Cameroun (Efande, 2015); Ethiopia (Abebe, 2012; Zone, 2014); Rwanda (Ayuba & Pascal, 2009); Zambia (Konayuma, 2013); Kenya (Kigwilu, 2014); and Nigeria (FME, 2012), have, among others, never had quality TVET programmes due to uncertainties within the system. Some of the issues inherent in these countries' TVET provision include: poor funding, unbalanced curriculum, dearth of training facilities and equipment. Others include; lack of conducive learning environment, adequate provision of learning resources, inadequately skilled/shortage of training personnel, lack of teacher commitment and motivation, among others. Some of these challenges are reviewed below.

#### **3.4.1 Adequacy of Funds in TVET**

Financing TVET is capital intensive due to the innovative facilities needed for effective implementation of the programme (Ziderman, 2003). The Nigerian government in recognition of this fact reiterated the effort to make funds available for effective implementation of TVET programmes in its institutions. However, the reverse has been the case, as King (2011) and

Wahba (2012) noted. TVET programmes globally, but especially those in developing countries, Nigeria included, have been impaired due to insufficient funds. Research findings from Pakistan signpost that TVET lacks adequate funding; most of the respondents in the one study gave credence to the fact that the monies provided by the government to run the programme is not sufficient (Akhuemonkhan & Raimi, 2013). The issue of poor funding of TVET programmes in Nigeria by the government and donor agencies have been a recurring point (Ladipo et al., 2013). According to Wahba (2012), the use of modern training facilities depends on the capacity of the budget. He further remarked that the challenge confronting TVET in third world countries is the limited budget; and this is explained as one of the reasons why TVET institutions are not able to employ qualified training personnel and to purchase relevant training facilities and aids for technology for practical training, among others.

### **3.4.2 Adequacy of the TVET Curriculum**

Umunadi (2013) contended that the curriculum of technical education should be planned in such a way that it reflects societal goals, interests and values expectations that are dynamic, to keep pace with modern trends. However, in practice, this has not been so with developing countries in Africa and beyond. A study in Tanzania by Munishi (2016) noted that six out of 10 TVET institution had not reviewed their curriculum for over five years. Similarly, Ismail and Mohammed (2015) found that the electrical technology education curriculum in one of the federal universities of technology in Nigeria showed that there is no skill in the curriculum that will prepare the students for gainful employment. Concurring to that Nkwame (2015) maintains that the curricula for TVET training institutions have failed to shape their graduates to face the requirement of employers. This was confirmed by Arfo (2016) in his study, which found that TVET curricula in Nigeria are not responsive to the needs of the labour market and the economy. According to him, the curriculum need to be reviewed to cater for skills and programmes that would meet the need of the students, community, economy and the nation at large.

### **3.4.3 TVET Tools, Equipment, and Infrastructural Facilities**

An inventory study carried out in Afghanistan established that most TVET providers visited are equipped with modern equipment and materials to execute training (Savage & Brennan, 2011). It was also argued that the efficiency of any TVET institution depends in the availability of training facilities and equipment (Ibid). In alliance with this, Idialu (2007)



remarked that most training establishments in Nigeria are bedevilled by the lack of training equipment, workshop and facilities, and ill-equipped laboratories. Therefore, if TVET programmes must yield 100% efficiency so as to attain its intended objectives, then there is a need for adequate provision of training facilities and appropriate workshop tools and equipment that will ensure quality training in technical institutions (Afeti, 2009). It was reported that in a situation where the facilities in use for the execution of TVET programme are outmoded and not functional, it is unthinkable to expect high quality output with regard to the production of competent graduates that have practical skills (Legg-Jack, 2014).

Abdullahi (2014) found that majority of polytechnics and colleges of education in Kaduna, Nigeria have challenges with the effective power supply needed to run their metalwork technology programmes, and this has hindered machine-shop, fabrications, foundry and forging activities in the workshop. Similarly, in Tanzania, it was also reported in a study that some TVET institutions lack conducive learning environment due to overcrowded classrooms. This was attributed to the lack of adequate number of classroom buildings, inadequate computer laboratories, and ill-equipped libraries, among others (Munishi, 2016).

#### **3.4.4 Conducive Learning Environment**

To ensure effective teaching and learning in Nigerian TCs, it is stipulated in the Federal Republic of Nigerian National Policy on Education [FRN] (2004), that the teacher-student ratio shall be 1:20 for trade-related subjects. However, this only seem to be obtainable in policy, and not in practice as several studies have reported otherwise. In a study conducted by Legg-Jack (2014) in Government technical college Ahoada, in Rivers State Nigeria, one of its findings points to overcrowded classrooms, and this has hindered the development of employability among its graduates. Relatively, Dasmani (2011) described the issue of overcrowded classroom as one of the factors that impedes the effective preparation of TVET graduates for the labour market.

#### **3.4.5 Adequacy of Teaching and Learning Resources**

One of the challenges inhibiting the effectiveness of TVET provision, as cited globally, is the inadequacy of teaching and learning resources (Kigwilu, 2014). A case in point is a study in Solomon Island on teachers' perceptions of outcome-based science curriculum (OBSC). The study revealed that dearth of teaching and learning resources hampered the effective implementation of the OBSC. In Nigeria, it was also established by Bandele and Faremi (2012)

that lack of standard workshops and other related modern instructional materials were among the major problems encountered in teaching technical and vocational education and training in technical colleges.

A study which investigated the factors that affect the implementation of TVET programmes was conducted in selected public institutions in the Southern Zone of Tigray (Hailu, 2011). The sample size for the study consisted of 37 trainers, 162 trainees, and 12 TVET officials of TVET institute coordinators, and core process owners within TVET institutes. In selection of participants for the study, stratified random sampling, simple random sampling and purposive sampling methods were adopted. Data for the study was analysed using frequency counts, percentages and the mean score. The study signposted that inadequacy of training facilities and materials were some of the major constraints to effective TVET provision in the selected public institutions. Contextually, the aforementioned study was conducted outside Nigeria. However, it is related to the current study, although limited to only teaching and learning resources, and it prompted the researcher to explore the extent of TVET provision in Nigerian technical colleges alongside the relevance, effectiveness and efficiency of stakeholder partnerships.

A related study was conducted in Ghana by Dasmani (2011), which investigated the problems facing technical institute graduates in practical skills acquisition in the Upper East Region. The descriptive study selected 434 teachers, students and technical institute graduates from the two municipalities from the location of the technical institutes through simple random and purposive sampling technique. Questionnaires with an internal consistency reliability coefficient of 0.7018 were used for data collection. The study revealed, among other findings, that inadequate instructional materials and training facilities contribute to the ineffective training of students. The study reviewed however focused only on practical skills acquisition by graduates of technical institutes. Conversely, the current study explores the practical and theoretical aspect of the curriculum as opposed to examining a single aspect of the curriculum, which is peculiar to the study reviewed.

According to Kigwilu, Akala and Wambua (2016), a study which examined the challenges to effective implementation of artisan and craft courses in Catholic sponsored community colleges in Nairobi Kenya was conducted. A mixed method design was adopted, and a sample of 18 artisan and craft teachers and 172 artisan and craft students and four directors of Catholic sponsored community colleges was selected. Quantitative data was

collected using questionnaires and was analysed using descriptive statistics, whilst the qualitative data was collected using interviews and was analysed and presented in narratives and direct quotation. Findings revealed, among others that teaching and learning facilities are inadequate. It was concluded that teaching and learning resources are one of the factors hindering effective implementation of the artisan and craft programme in the Catholic community colleges.

In North-Central Nigeria, a study was conducted to assess the facilities in 19 Government technical college (GTC) workshops in Benue, Kwara, Niger and the Federal Capital Territory, Abuja, in the context of a developing country (Umar & Ma'aji, 2010). The study, descriptive in nature, adopted stratified random sampling techniques to select 265 respondents: 101 administrators (principals, vice principals, and heads of department), 140 teachers and 24 workshop personnel (workshop assistants and attendants) from the clusters of engineering and construction trade programmes. Data was collected using a 35-item structured questionnaire and was analysed using the Statistical Package for Social Sciences (SPSS).

The findings revealed that administrators, teachers and workshop personnel shared similar views that facilities such as library facilities, locker spaces for each student, location of lavatories racks and boxes for storage of tools, first aid facilities, and standard work benches, among others, were inadequate. The study also revealed that one of the strategies towards acquiring adequate facilities in technical college workshop is that the private sector should be encouraged to initiate and participate in the provision of facilities. Linkages between technical colleges and industry employers should also be strengthened. Government should also solicit support from non-governmental organisations (NGOs), parent teacher association (PTA), and community based organisations (CBOs) for assistance. The study concluded that the desire to produce competent technical college graduates can only be achieved when training facilities are relevant and adequate for the programme, as stipulated in the curriculum. The study recommends that partnership with relevant stakeholders is one sure strategy to cater for the inadequacy of teaching and learning resources and effective implementation of TC programmes. Although the reviewed study shares similar aspects of the current study, however, contextually, the aforementioned study was based on one zone, against the current study which span four geopolitical zones. Hence the need to explore if similar findings hold for other geopolitical zones. Besides, the study is qualitative, and may not give sufficient insight on the problem, whilst the current study is mixed method, and aims at broadening the understanding on TVET provision across the six geopolitical zones of Nigeria.

### **3.4.6 Adequacy of Qualified Training Personnel**

The level of development inherent in a given nation lies on the quality and adequacy of teachers they possess within their educational strata (Legg-Jack, 2014). In agreement with this, Bandele and Faremi (2012) contended that the preparedness of the TVET is of great interest to educational policy makers. According to Audu et al., (2014) the dynamic role of teachers, especially those in the technical field, demands professional teachers, not only in nomenclature but also in training and status in the society. Consequently, Goro (2000) remarked that teachers must be provided with and offered unfettered access to the necessary technological equipment training and resources that will result in improved students learning. In agreement with Goro, Audu et al. (2014) posited that technical teachers need sufficient infrastructure and educational facilities in the likes of machines, equipment and books. These submissions are based on the acknowledged fact in the FRN (2014) that the level of development in any nation can be traced to the type of teachers they have. It was concluded that the inherent challenge with teacher education in Nigeria is the quality of teachers produced; they are inadequate to meet the need of the teaching profession in our institutions (Gidado, 1995). According to the United State Embassy in Nigeria (2012), one of the challenges confronting TVET development in Nigeria is the issue of poor quality of TVET teachers.

A study was conducted with the purpose to identify the re-training needs of motor vehicle mechanics (MVM) teachers at technical colleges in Niger State and Abuja in North-Central, Nigeria (Audu et al., 2014). Specifically, the study centred on understanding the pedagogical and practical re-training skills need of MVM teachers. The study adopted a descriptive design, and 59 teachers were selected from all technical colleges in Niger State and Abuja, based on the fact that they were in a good position to give authentic information on the re-training needs of MVM teachers at technical college level. Data for the study was collected using a 35-item structured questionnaire, and was analysed using the statistical mean and standard deviation. The study found that MVM teachers are ill-equipped to teach in the college with regard to pedagogical and practical skills, and that they need re-training in terms of pedagogical and practical skills in MVM trade. The study concludes that technical college teachers in Niger State and Abuja are not confident of their pedagogical and practical skills, and as a result, they need re-training in both pedagogy and practical skills to enable them perform their professional responsibilities in their practice. Among others, the study recommends partnership between technical colleges and the automobile industries so that MVM teachers could be trained by experienced industry personnel. One of the major gaps in

the study is that it considered the re-training needs of MVM teachers, which is an aspect of engineering trade, as opposed to the current study, which is on ascertaining the extent of TVET provision in both MVM and Electrical Trades. Besides, the study was based on one geopolitical zone, whilst the current is across the six geopolitical zones.

### **3.4.7 TVET Teachers Motivation and Commitment**

Another issue that relates to teacher effectiveness in TVET institutions concerns motivation and commitment. Tafida, Clement, and Raihan, (2015) found that lack of commitment from TVET teachers emanates from the slack of appreciation by the government, inadequate provision of training materials, tools and equipment, and better conditions of service in the private sector. In a related development, Komba, Hizza and Jonathan (2013) submitted that teachers' promotion takes too long and is not given adequate attention by the authorities concerned. Kumazhege and Egunsola, (2014) both found, among other findings, that teachers' motivation as one factor that contributes to the lack of practical skills acquisition amongst TC students.

### **3.4.8 Administration and Management of TVET Institutions**

According to Berhe (2011), one of the first conditions that must be met in planning TVET programmes is to ensure the presence of an active management, especially human resource management. Studies by Osami (2013) and Legg-Jack (2014) found that one of the challenges that inhibits implementation of technical education with particular reference to Rivers State in Nigeria is the absence of a qualified management personnel. In support of this, Nwaolu (2005) remarked that priorities are often misplaced when technical education is placed under the management of novice who possess little or no knowledge in the field. According to Osami (2013), in States like Rivers, TVET is managed by those in other fields of education, which resulted to the introduction of some programmes at the technical college level that do not meet with industrial requirements. In addition, MacDonald, Nink and Duggan (2010) argued that an effective TVET management takes into account labour market needs, responding to the need of the formal and informal sectors with regard to employment and the professional capacity of TVET training personnel. In Rivers State, the study one of the technical colleges also revealed that there is the absence of a separate technical education board established to oversee the activities of the programme in the State (Legg-Jack, 2014). The establishment of separate technical boards manned by professionals in the field of TVET can contribute

positively to the development and implementation of the programme. The establishment of such boards culminated in the employment of 200 TC graduates through a partnership arrangement between the Lagos State Technical and Vocational Technical Colleges Board (LASTVEB) and industry (Olugbamila, 2014).

### **3.4.9 Monitoring and Evaluation of TVET Programmes**

Raimi and Akhuemonkhan (2014) state that to ensure TVET impacts on employability and national development in Nigeria, there is a need for regular monitoring of teaching and learning in TVET institutions through regulatory authorities. In support of that Legg-Jack (2014) submitted that in planning and executing a results-oriented technical college programme, there is need for effective monitoring and evaluation. He further remarks that achieving quality in TVET can only be possible through systematic monitoring and evaluation to be assured of the high quality of results of the programme.

In Kaduna State, a study with the purpose to assess the implementation of the Nigeria Certificate in Education (Metalwork Technology) curriculum was conducted in polytechnics and colleges of education [COE] (Abdullahi, 2014). A sample of 150 respondents that cut across students and lecturers of polytechnics and COEs, officials of National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE) was proportionally selected. The descriptive study adopted the use of questionnaire for data collection and was analysed statistically by the use of frequency and percentages. The study revealed, among others, that the proper implementation of metalwork technology requires effective monitoring and supervision of the entire programme to ensure its effectiveness. The reviewed study was carried out at a higher level-polytechnic and COE; it is also a quantitative study and only considered metalwork. In contrast, the current study is at a lower-level technical college, a participatory mixed method was employed, and it considers MVM and electrical trades.

### **3.4.10 Teaching and Learning Strategies**

According to Kigwilu (2014) there are indications from several studies in Kenya that TVET teachers show greater preference to teaching the theoretical aspects of the curriculum as compared to the practical. Dike (2009) lamented that the failure of Nigeria technical colleges to meet the national development needs of the nation is based on the extreme emphasis placed

on the theory aspect of the curriculum by teachers, as compared to the practical. He further remarked that this sometimes exposes the students more to theory than pragmatic learning. This was also confirmed by Ismail and Mohammed (2015) whose analytical review of one of the universities of technology curriculum showed that more emphasis is placed on theory-based learning in contrast to practical learning.

In a study conducted in Ferej, Kenya, it was established that most of the TVET teachers lack work experience. The study revealed that 38% of TVET teachers interviewed had acquired industrial experience of about six months or less, 26% had work experience of between 12 to 36 months, whilst 16% had work experience of over 36 months (Ferej, Kitainge & Ooko, 2012). The study also showed that about 67% of the TVET teachers were more comfortable teaching theory than practical. Contextually, the cited study was conducted in Kenya; the current study is in Nigeria, to ascertain if similar findings would hold for TVET at technical colleges. The need for practical/industrial experience in TVET provision at the technical college level cannot be overemphasized. It is uncontested that any preference to teaching only the theoretical content of the curriculum will to a great extent hamper the effective provision of TVET at technical institutions (Kigwilu, 2014).

From the foregoing, it is evident from the studies reviewed above that TVET in both developed and developing countries is confronted with a wealth of challenges, encompassing training facilities, infrastructure deficiencies and industry relevance, among other factors (Okoye & Okwelle, 2013). What is needed at this stage are key reforms that will transform TVET provision in the region, and in Nigeria specifically; thereby guaranteeing its recipients the opportunity to secure either paid or personal employment.

### **3.5 TVET REFORMS IN AFRICA**

According to Alam (2015), quality in TVET is now the key factor motivating many countries to put in place measures that ensure effective provisions in TVET. In line with this, Kingombe (2011) argued that most existing TVET policies in Africa are fragmented and inadequate in scope, and government occupies a dominant role in support of formal training. Since the TVET system demonstrates a supply-driven approach that is unproductive and unresponsive to the needs of the labour market, there is therefore a pressing need from most nations of the world and large organisations such as UNESCO for overhauling the existing TVET systems (Alam, 2015). This move to introduce change within the TVET system also has the backing of Kingombe (2011). According to Afeti (2009), since the inception of the new

millennium, a renewed consciousness amongst African nations and international financing community on the critical role of TVET in economic growth and development has dawned amongst policy makers. This new priority attached to TVET is reflected in the various poverty reduction strategy papers that governments have developed in partnership with the World Bank (Bloom, Canning, & Chan, 2006). It is widely believed that the reality of skills acquisition in Africa is dominated by the informal sector, and this has called for a paradigm shift in skilling Africa from a formal TVET system to a holistic and inclusive system of technical and vocational skills development [TVSD] (Afeti & Adubra, 2014). This call was endorsed by stakeholders at the 2012 Association for the Development of Education in Africa (ADEA) Triennale held in Quagadougou, Bokina Faso, under the sub-theme of “Lifelong technical and vocational skills development for sustainable socio-economic growth in Africa.”

### **3.5.1 TVET Reform in Africa: A Paradigm Shift**

There have been moves to a new way of TVET provision by the African Union. There is pressure towards a paradigm shift referred to as the “Continental Strategy for Technical and Vocational Education and Training (TVET) to foster Youth Employment” in TVET reforms, according to the African Union (n.d). This “means developing the idea that TVET prepares young people to become job creators rather than job seeker.” The essence of the shift in approach as remarked by the African Union (n.d, p. 18) as well as Afeti and Adubra (2014) is such that it results in a more holistic policy in favour of the sector. This makes it possible to adopt and recognize the acquisition of skills in all areas of training and learning, whether formal, informal or non-formal. By implication, skills for the world of work may be acquired from diverse learning sites such as these: formal, school-based system; informal sector training (that is, the traditional apprenticeship system); industry-based, on-the-job training; non-formal, semi-structured or unstructured training; and online, internet-based training (Afeti & Adubra, 2014). Encapsulated in the skill development policy for a paradigm shift are both trade-related competencies and cross-cutting skills such as critical thinking, problem-solving, and entrepreneurial and analytical skills that are necessary for functioning effectively in the world of work and that are capable of driving innovation or being adapted to new learning environments or different sectors of economic activity (ibid).

One approach to foster youth employment and to achieve this paradigm shift, which is outlined in the Continental Strategy for TVET, is to ensure training for the acquisition of skills for the world of work at different learning environments. This should be through collaboration amongst stakeholders from the state, training institutions, productive sector, and the public



(African-Union, n.d). It is widely noted that some countries have already initiated and implemented programmes that mirror some aspects of the paradigm shift, whilst other are yet to do so. Evidence from the literature show that countries like Uganda (IBRD-IDA, 2012), Botswana, Ghana and Kenya (Oketch, 2017) have already taken in this paradigm shift in TVET provision. According to Oketch (2017), Botswana, Ghana and Kenya have shown improvements in their various policy reforms. According to UNESCO (2013), in a study conducted in the Southern African Development Countries (SADC), it is reported that there have been significant reforms in the following areas, namely in the qualifications framework, quality assurance, and policy coherence. Others include these: national governance reform, employer involvement, public provider governance reform, including private sector providers, and decentralization in provision. The implication of these findings is that the SADC region has acknowledged the importance of TVET, and has initiated the move for a paradigm shift. Prominent in the reforms is employer involvement, which is a major aspect in reducing skills mismatch in training. However, there seems to be no literature from the Nigerian context of initiating a paradigm shift in its TVET provision with regard to stakeholder partnerships in TVET planning, delivery and implementation.

### **3.6 CONCEPT OF STAKEHOLDERS**

According to Forh (2014), stakeholders are individuals or organisations that are concerned with the development and welfare of an establishment and thus see their interests linked with the community's state of being. The concept of stakeholder was first made popular by R.E Freeman, who first applied it to his management theory formulated in 1984 (Fontaine, Haarman & Schmin, 2006, p. 3). At that time, it was defined as any group of individual who can affect or is affected by the achievement of an organisation's objectives (Fontaine, Haarman, & Schmid, 2006, p. 3). Thereafter, a precise and clearer definition was provided to read thus: "stakeholders are those groups who are vital to the survival and success of an establishment (Freeman as cited by Fontaine et al., 2006, p. 4).

According to Edomwonyi, Osasogie, and Olaita (2016), one way to mitigate the lack of quality in TVET provision is to involve stakeholders from the public, private and volunteer sectors. However, the picture in Nigeria seems to portray an underutilisation of the private and voluntary sector on the issue of collaboration in tackling the challenges and delivering quality TVET programmes. In contrast, there seems to be a positive impact when there is partnership amongst these three sectors. Hence there is need to awaken all stakeholders through strategic

synergies so as to make them alive to their social responsibilities, specifically in the provision of resources and skills needed (Edomwonyi et al., 2016).

### **3.7 SYNERGIES FOR SUSTAINABLE ECONOMIC REFORM AND DEVELOPMENT IN TVET**

According to the African Union (n.d), one way to achieving the paradigm shift in TVET is in forming alliance with stakeholders from the state, training institutions, productive business sector, and the public, otherwise known as civil society.

Edomwonyi et al. (2016) agreed that the provision of sustainable quality TVET provision in Nigeria and other countries of the world is in the immediate need for intervention, and this can only be achievable through collaboration with multiple stakeholders.

#### **3.7.1 Multi-Stakeholder Partnerships (MSP) in TVET Provision**

MSP is a broad term promoted by the World Economic Forum (WEF) within the general framework of corporate social responsibility that brings a wider range of public, private and civil society organisations together (Draxler, 2008; Fennell, 2010). These organisations are considered cooperative ventures between the public, private, and civil sectors, built on the proficiency of each partner that best meets clearly defined public needs for services, infrastructure, or development activities through the transfer of resources, risks and rewards between them (Canadian Council for PPP, 2008).

MSP in TVET provision is based on the notion that delivering and sustaining a quality TVET programme depends on a broader coalition than the public and private sectors (Edomwonyi, Osasogie, & Olaita, 2016). It is further described as an arrangement whereby stakeholders from the ministries, boards, and schools representing the public sector; corporations, trade unions, and professional bodies from the private sector; and organisations such as UNESCO, ILO, USAID, and SWISS-UNIDO pool their resources together to ensure a quality TVET provision (ibid).

Globally, as remarked by Watters, Hay, Dempster and Pillay (2013), Human Resource Development Council for South Africa [HRDC] (2014), Ayonmike, Okwelle, and Okeke, (2015), achieving quality in TVET provision is only possible through the language of partnership between training institutions and stakeholders from other sectors. Partnership with other stakeholders, according to Smith-Comyn (2011) and Ayonmike and Okeke (2016), remains the best option in addressing the problems associated with TVET programme

relevance alongside the provision of human and material resources needed to facilitate the training. It is on this premise that Olaitan (2000) defined partnership as an arrangement between two resource entities, such as an educational institution and an industry, to help training recipients develop functional skills for the workforce by creating room to put theory into practice. Partnerships exist in different form. According to HRDC (2014), the different types of partnerships include:

- Public-private: this is the type of partnership that exists between a public TVET institutions and a private sector enterprise (s);
- Public-public: this is a partnership between two public institutions (for example, school and government agency or board);
- Social partnerships: partnership between TVET institution and NGOs, CBOs, civic groups or philanthropies; and
- Personal partnerships, which partnerships between TVET institutions and people directly.

All partnerships are aimed at attaining shared goals among the various stakeholders involved (Mitchell, 1998). The overall objective of the different types of partnerships, as listed above, with reference to public-private relationships, is to mobilise a collective effort to enhance the relevance, effectiveness, efficiency, equity and sustainability of training and to forge an optimal response to address the skill requirement of individuals, enterprise, the community and the objectives of national development (Mitchell, 1998). Ensuring the relevance and quality of TVET provision demands the involvement of industry and other relevant stakeholders throughout the development of all key features of the system (Smith-Comyn, 2011). On the global scene, according to Tansen (2012) and Lewis and Patrinos (2012), there is a clamour for the involvement of different stakeholders for effective education provision in many countries of the world. The reasons are that governments have failed in its capacity to provide access to high-quality training needed for their countries' advancement. Therefore, establishing partnerships between technical training institutions and other stakeholders would yield huge benefits to the participants involved, and the economy at large (Lewis & Patrinos, 2012; Triki, 2013). To raise the standard of education, TVET included, inputs are needed from stakeholders representing institutions such as academia, industry, government, community, private sector employers, NGOs, philanthropic individuals, international/intergovernmental organisations, trade unions, PTAs, and faith-based

organisations (Lewis & Patrinos, 2012, Onduru, 2012). In developed nations of the world, it is widely noted that collaboration for quality delivery in education usually includes academia, industry and government.

### **3.7.1.1 Academia**

The training institution has a huge role to play with regard to TVET provision. According to Amankwah and Swanzy (2011), the training institution is mandated with the responsibility of providing a conducive environment for TVET instructors and students to promote teaching and learning through the provision of the needed facilities. Such colleges are also to provide training within the national policy framework through the instrumentality of TVET trainers, establishing partnerships with industry employers and other stakeholders. Others include instituting bursary schemes for poor students and trainees, strengthening guidance and counselling services to students and trainees, and creating networks and benchmark with other training institutions. However, Rose (2012) and Billet (2014) argue that TVET trainers are not given the right of place and in the planning and implementation of TVET programmes. According to them, if TVET programmes are to realise their purpose, the school, through the instrumentality of its teachers and students, must help determine the programme. According to Klimek (2010), it is assumed that there are various teaching and learning strategies and attitudes that can be brought to bear on the development of the programme content. When these are given due consideration in the designing of the programme, the graduate attributes achieved will include employability and creativity skills. Further, Pompa (2013) argued that students are necessary stakeholders to be considered in the planning of their own programme since they take part in it.

### **3.7.1.2 Industry**

Amongst the stakeholders, in any developing country industry, according to Smith-Comyn (2011), occupies the centre stage in determining TVET quality; hence the need to partner with industry to ensure the relevance of the system. In agreement with this, Minghat, Yasin, Subari and Noordin (2013) argued that the objectives of collaborating with industry includes the job placement of students, identifying the need for new courses and increasing the added value of service or product delivery. Minghat et al. (2013) contended that the ability of TVET training institutions to produce employable graduates who will excel in their different careers depends on regular updates of the curriculum in line with industrial requirements. Industry has inputs such as delivering workplace training to TVET trainers, contributing financially to national training funds, providing opportunities for teachers to regularly update

themselves through workplace experiences, and contributing to development of the curriculum for economic relevance (Aworanti, 2015b).

### **3.7.1.3 Government**

In the TVET sector of any given country, the government is a key player in planning and implementing TVET programmes. According to Aworanti (2015b), the government gives legislative backing to national TVET policies, invests in TVET programmes, mobilises and encourages the private sector to participate in the quality delivery of TVET programmes, and also ensures the effective monitoring of TVET programme for relevance. Similarly, Alam and Hoque (2010) contended that the role of the government to ensure the effectiveness and efficiency of TVET provision spans the provision of financial support to trainers and the supply of equipment and infrastructure for training in the training institutes. Others include the provision of incentives to encourage industries to train students through industry placement, to formulate policies to streamline industrial training for both staff and students, and to establish regional training centres to build student competencies for industry.

In the following section, I present an empirical review on related studies on the benefits of partnerships to various stakeholders in collaboration.

## **3.8 EMPIRICAL STUDIES ON THE BENEFITS OF STAKEHOLDER PARTNERSHIPS**

This section presents reviews on empirical findings on the benefits of stakeholder partnerships in training programmes.

### **3.8.1 Knowledge Exchange**

According to Udin et al (2012), collaboration can span developing networks between teachers or TVET institutions and industrial employers, thereby fostering mutual benefits for both parties. To buttress this view, Bukit (2012) submitted that linkages between TVET teachers and industry employers could offer new technologies or working standards to be used in industrial production. It is in that light that Kilbrink and Bjurulf (2013) argued that teaching and learning in vocational education is supposed to take place in both in the school and workplace, and that in such an atmosphere of dual learning, the question of transfer of knowledge becomes important, that is how to apply previously acquired knowledge in new situations

To buttress this, they conducted a study that investigated the appearance of transfer of knowledge and factors providing transfer possibilities in teacher and supervisor narratives in a vocational study programme in Swedish upper secondary schools (Kilbrink & Bjurulf, (2013). A total of five participants were selected, two teachers from the school and three supervisors from the workplace. Data for the study was collected using semi-structured focus group interviews and was analysed thematically. The study showed transfer in the following areas: basic knowledge from schools in machine code (ISO-code); mathematics, use of tools; materials and measurements; principles and skills; application of principles on how to work with different materials and application of different human senses in engineering work such as welding in new situation. Other findings include evidence of the transfer of written materials to real life situation (that is to transfer written content into concrete situation, for instance, having an understanding of isometric cube in plumbing, the ability to describe a real-life situation into documentation, and the transfer of experiences, meaning the ability of a student to work independently and conduct work in different situations in order to develop experience).

There were other findings considered as factors that enable these transfers to take place. These include: the communication needed for good cooperation between schools and industries for the school to use machines owned by industries, students' participation in industrial activities to fulfil their course objectives, and the understanding of how to build on their previous knowledge. The cited study is qualitative in nature, and never explored TVET provision in its totality. It differs from the current study in that it was conducted in Sweden, whilst the current study employs a participatory mixed method approach in exploring TVET provision alongside the relevance of stakeholder partnerships.

The language of partnership, as remarked by Griggs (2015), is powerful when implemented in practice. In agreement with this assertion, a study entitled school-industry partnerships an innovative strategy for vocational education was conducted in Queensland Australia (Watters, Hay, Dempster, & Pillay, 2013). The purpose of the study was to theorise how knowledge that is valued and foundational in the workplace employment can inform school curriculum and pedagogical practices. The study adopted a longitudinal case study approach, as samples included principals, teachers, students and vocational education coordinators from 20 governments, private and Catholic schools. Also included as part of the sample were industry and staff personnel from six industries representing agribusiness, aerospace, building and construction, manufacturing and engineering, minerals and energy, and wine tourism. The study employed primary and secondary methods of data collection. Primary

data was generated through interviews, observations, focus group interviews, whilst secondary data was derived from websites, policy documents, curriculum and syllabus, and teaching materials.

Findings from the study indicated that such school-industry partnerships avail the schools access to industry facilities, develop a responsive curriculum that meets the need of industry, and build the capacity of constrained teacher-knowledge. Other benefits include the development of the needed human resources, exposure to experiential learning, access to dual learning sites, mentorship and supervision of industry personnel, increased students' participation in their area of specialisation, participation in workplace industrial training programme, and student preparation for employment and further training in higher education. Contextually, the cited study was conducted in Australia, and is qualitative in nature, as opposed to the current study, which is mixed method in approach, hence the need to conduct the current study to find out if similar finding would hold for the Nigerian context.

In a related development, a study titled perceived benefits of school-industry partnership was conducted in Alabama, United States of America. The focus of the study was to discover the perceptions of benefits of the teachers, students and company employees involved in a school-industry partnership, and to give voice to the participants within the school organisation. A qualitative approach was applied to generate data through interviews, observations, and review of documents from company employees, school administration-teachers and students (Griggs, 2015). Findings revealed that teachers' knowledge is updated continually in line with the dynamic nature of the workplace; workplace learning provides a more flexible educational experience that values innovation and creativity; and learning in real-world environment with the right personnel makes learning become relevant life experiences. Other findings that emerged include the provision of relevant classroom learning through the employee mentorship and increased motivation in students to learn in their area of specialisation, because the partnership provided real world experience that seemed relevant to their future. Also signposted by the study is the growth of essential skills; increased confidence; communication skills; employability skills; and understanding of the need for essential skills. According to Griggs (2015), school-industry partnerships grant learning opportunities that are not limited to the usual constraints of school environment, and the development of employees and teachers for the workforce. The aforementioned study was conducted in United States and it adopted a qualitative design, hence the need for the present study – a mixed method which

will offer a better understanding to the school-industry partnership, and to also ascertain if the findings apply to this context.

### **3.8.2 Development of Innovative Skills**

A similar study, which featured AATO University in partnership with an industry, was conducted in Finland (Edmondson, Valigra, Kenward, Hudson, & Belfield, 2012). The purpose of the study was to transform teaching and learning in order to develop students with an innovative mindset, through collaborative, cross-disciplinary problem solving. The sample for the study was a professor of international design business management (IDBM). Data for the study was collected using a key interview from the professor selected. Findings from the study indicated a significant enhancement of Aalto's' university collaboration with industry, including the training of 703 students in 168 company projects with 114 partner companies and establishing a direct recruitment platform for IDBM students. As part of the results, 7-10% of the IDBM projects led to the development of real-world product innovation, creating major value for the industry partner and enabling the proximity of the university to market development, due to its students' involvement in innovative business models, including service design. Furthermore, many entrepreneurs emerged from the IDBM context, also, the IDBM programme helped evolve university governance through its different incentives and structures. The gap in the cited study is the limited methodologically, compared to the current study. More so, it was carried out in a tertiary institution, whilst the current study is in technical colleges, therefore the need to ascertain the possibility of replicating same findings.

### **3.8.3 Strengthening a supply-driven programme**

A study was conducted in Myanmar with two major objectives namely: to review the current state of TVET, with a particular focus on the role of the private sector; and to provide recommendations to determine measures to improve and strengthen the TVET system. Data was generated through document analysis and interviews. The samples of the study included participants from the government, workers, employers' organisations, relevant partners, stakeholders and other agencies. The result revealed that: Myanmar's TVET system is dominated by a supply-driven approach for both public and private providers, that means the training is not responsive to the need of industry; there is lack of stakeholder partnerships, there is no evidence of public or private enterprise involvement in curricular development; training subjects are designed with little or no consultation on the needs of the labour market. The study suggested that to make Myanmar's TVET demand-driven, there is a need to understand labour



market requirements, and to involve the private sector in designing the curricula to strike a balance between theory and practice and to ensure that the curriculum content and learning outcomes align with the need of the private sector (Milio, Garnizova, & Shkreli, 2014).

#### **3.8.4 Addressing skills shortages**

There is a widespread notion that both college and university TVET graduates in Africa and other parts of the world are deficient when it comes to possessing modern technological skills in their area of specialisation (Afeti, 2009). This assertion is confirmed by a study in Tanzania (Munishi, 2016), which attributed the lack of skills amongst graduates to inadequate exposure to industrial attachment for both TVET teachers and trainees.

To confirm this, a study was conducted in Nigeria by Ayonmike (2015) with the purpose of ascertaining the role of TVET stakeholders and the oil and gas industry in addressing skills shortages in the oil and gas sector in Delta State. The study adopted a survey design and 300 respondents comprising 200 lecturers and 100 TVET teachers were selected from tertiary institutions and technical colleges respectively. Data was collected using structured questionnaires and was analysed using statistical mean method. The study revealed, among other findings, the need for stakeholders to identify the skills need of the oil and gas industry, to review TVET curriculum content integrating oil and gas courses into TVET programmes and to retrain TVET teachers and instructors on oil and gas courses. Other needs identified were the provision of adequate oil and gas training facilities in TVET institutions; partnering with oil and gas industries for cooperative and joint training of prospective TVET graduates; provision of adequate funds and the establishment of oil and gas training centres across the nation. The study highlighted the need to introduce intensive practical training for TVET teachers and students through an effective partnership between TVET institutions and oil and gas industries in Nigeria, provision of scholarships to TVET teachers and students, and provision of research grant to TVET teachers. The study concluded that TVET stakeholders and the oil and gas industries in Nigeria have significant roles to play in addressing skills shortages in the Nigeria oil and gas sector by providing an enabling environment, resources, and a dynamic TVET curriculum that embraces oil and gas exploration and the production skills needed. The cited study is a quantitative study with only teachers as the unit of analysis, in contrast to the current mixed method study with several stakeholders as units of analysis.

In comparison, a study was conducted in 14 technical colleges in Kaduna and Kano States, in North-West Nigeria that offer motor vehicle mechanics trade (MVMT) (Shehu,

2016). The purpose of the study was to identify skills needed by graduates of MVMT as a result of innovations in auto-electrical systems. A total of 167 participants were selected for the study comprising 26 automobile engineers from Peugeot Automobile of Nigeria in Kaduna, National Trucks Manufacturing Limited in Kano, and the automobile parts industry in Kano, as well as 44 and 97 technical college teachers and graduates respectively. The study adopted a descriptive design; data was collected using a 31-item structured questionnaire and was analysed statistically. The study found that graduates of MVMT require about 31 set of skills such as skills in scan tools, engine immobilizers, power doors, vehicle tracker, digital multimeter, electronic controlled air conditioners, anti-theft security alarms, safety airbags and airbag curtains, among others. The study concludes that these MVMT graduates require the 31 identified skills and thus recommends that the skills should be integrated into the MVMT curriculum. The contrast between this and the current study is that it is a quantitative study, and focuses on one of the trades of the current study which is based on participatory mixed method design.

### **3.8.5 Sustainability of Training Programmes**

One of the issues that bothers on TVET programme sustainability is the involvement of the local community (Forh, 2014). It was proposed in a study, the need for a participatory approach involving the local community people at all levels of project planning and implementation in order to cut down government investment (Lysaght & Kell, 2011). According to Desimone, Payne, Fedoravicius, Henrich, and Finn-Stevenson (2004); Olatoye, Aderogba, and Aanu (2011) partnership between TVET institutes and the surrounding community have proven to be beneficial to the training institution, reasons being that community members have services that they can render to their community for its advancement. Local community people involvement in TVET planning and implementation, assessing TVET institutional needs, and increasing the effectiveness of TVET to meet the local communities' needs were part of UNESCO Center for TVET postconflict reconstruction in Liberia (Johnson, Philips & Maclean, 2007). This implies, a mutual relationship in resources sharing between TVET providers and their surrounding communities. According to Forh (2014), community involvement is the process of involving its members in making decisions on issues that affect them such as service planning, policy development, and addressing quality issues among others. Forh (2014) in his study reported that impact from local community ranges from the provision of land for the construction of training institution, provision of fund at ad hoc basis needed for the sustainability of training programmes. In addition, it was also

reported that philanthropic individuals from local community supported training colleges through scholarships and financial aids to students, allocation of land, and cleaning it for the construction of the training institution.

A study by Ogba (2016) was conducted in Ebonyi State, South-East Nigeria to determine the extent of community partnership in TVET for sustainable agricultural education in secondary schools in Ebonyi State. The sample size for the study was 165 respondents, including teachers and students who were randomly selected. Data for the study was collected using a questionnaire and was analysed through statistical mean and standard deviation. Findings showed that the community donated land for the establishment of schools for the sustainability of agricultural science education, the community also procured and donated farm inputs to sustain agricultural science education, and the community built agricultural science education laboratories in secondary schools in Ebonyi State. The study concluded that school partnerships with the community yield good results, and as such government should invite community members for seminars and workshops for partnership in other areas of training needs. The reviewed study only considered an aspect of partnership and it is centred on agricultural science education, besides, it was conducted in one geopolitical zone as opposed to the current study that focuses on the relevance of stakeholder partnerships in TVET provision with regard to engineering trade in Nigerian technical colleges in the six geopolitical zones.

### **3.8.6 Provision of Resources (Funds, Facilities, etc)**

The international financing community (IFC) is another type of stakeholder. TVET provision is capital intensive in the sense that involves the provision of well-equipped workshops and laboratories, service facilities, and machineries, among others (AU, n.d). To mitigate the cost of TVET provision, Edomwonyi, Osasogie, and Olaita (2016) argued that involving IFC in multi-stakeholder partnerships can guarantee effective training with regard to the provision of the resources needed. This view was supported by Mukirae (2005, p. 78), who argued that there is need for the international donor community such as the World Bank to assist training institutions in the provision of grants for capital development expenditure to enable them expend their capacity and modernise their training. In addition, Aworanti (2015b) stated that international donor organisations can also fund TVET researches and advocacies, support capacity building in TVET and disseminate best TVET practices, among other benefits.

### **3.8.7 Policy Inputs, Access to Industry Facilities and Expertise**

Research has shown that non-governmental organisations are committed to working towards economic, social or political transformation in developing countries, hence they are being referred to as development NGOs (Ulleberg, 2009). With this in view, Ulleberg (2009) argue that potentially, NGOs can participate in all phases of the policy cycle and on all levels of public sector, as contributors to policy discussion and formulation, advocates and lobbyists, service deliverers (operators), monitors (watchdogs) of rights and of particular interests, and as innovators introducing new concepts and initiatives. According to Ulleberg (2009), NGOs play such roles in the education sector as filling gaps that are normally assumed to be the responsibility of basic education provision, where the government lacks the capacity to do so.

A study explored the effectiveness of partnerships between Cambodia's government, NGOs, and private sector in TVET in Cambodia, particularly from an NGO perspective (Chhun, 2016). The study adopted a qualitative case study approach. Data was collected purposively through document analysis and in-depth interviews from four participants who were purposively selected from three NGOs. Data was analysed using Creswell's framework for qualitative data analysis and interpretation. The findings of the study conclude that partnerships between government, private sector and NGOs are based on beliefs that collaboration brings benefits to each other. From the government's side, it is the provision of decentralized powers to local government to facilitate the working of the NGOs and the private sector, whilst for the NGOs, the benefits include accessing industrial equipment and expertise. From the private sector perspective, the benefits include the improvement of industrial production process and productivity due to the increased supply of well-skilled staff. The aforementioned study adopted a qualitative case study approach as compared to the current study, which employs a mixed method design. It focused on NGOs as the training provider, whilst the current study addresses government as the main provider.

### **3.8.8 Determining the Relationship between Stakeholders**

Strong partnership between academia, industry and government yields great advantages. However, Legg-Jack (2014) found that the variations in construction of skills need of technical college graduates emanated from the weak interfaces between the teachers and graduates (academia), employers (industry) and policy (government). He further submitted that producing graduates with the requisite skills requires an effective partnership between these three stakeholders.

To ascertain the relationship between these three institutions, a study was conducted in Malaysia. The study examined the challenges arising in the evolution of the triple helix institutional system in the context of the Malaysian socio-economic environment (Razak & Saad, 2011). The study adopted a qualitative case study approach. A total of 18 participants were purposively sampled. Seven participants came from universities (researchers, deputy vice-chancellors, and staff from research management centres); similarly, seven represented government agencies and ministries, whilst four persons were selected to represent industry (two managers and executives each from local and international multinational corporations (MNCs)). Data for the study was collected using a semi-structured interview and was analysed through a thematic approach.

The results of the study highlighted that Malaysian universities lack expertise in the development of new technologies, universities are faced with dilemmas and debates about the balance between teaching and research responsibilities and there is inflexibility in staffing policies that inhibit them from employing the right staff for the job. Other findings include commercialization due to lack of entrepreneurs, the provision of support by way of funding from industry, and misperceptions as regards the actual relationship and its parameters and boundaries. Furthermore, the findings revealed the lack of practical skills amongst graduates, due to university staff being too oriented to theory and diverse work cultures between the three stakeholders. Lack of clarity of intellectual property policy was also seen as a barrier affecting the relationship amongst the university, industry and government. The study concludes that the Malaysian government is still dominant in the development of knowledge and innovation, whilst academia and industry is dependent on the government in terms of overall coordination, objectives, planning and resources. This is a typical example of the Etatistic model. It also concludes that both the university and industry operate separately and are only linked through market need, which is a key feature of the laissez-faire model. It was also noted that there is a need for the three stakeholders to work with commitment to ensure the successful implementation of the triple helix institutional system in Malaysia. Although the reviewed study applied one of the frameworks employed in the current study, however, its design is qualitative against the mixed method used in this study. More so, the context and unit of analysis differ from the current study.

### **3.9 CONCLUSION**

This chapter presented a review on related literature with regard to the subject under scrutiny. The review provided insights into the TVET landscape in Africa, with the need to change approaches, attitudes and priorities concerning TVET, a historical perspective of TVET development in Nigeria over the years, and a critique on the target of educational expansion in Nigeria for employment rather than employability. Furthermore, a review on contemporary challenges to quality TVET provision, and how it has been addressed regionally and in Nigeria was also presented. The chapter further addressed the focus on TVET reform, the role of effective TVET programmes, and the synergies for sustainable economic reform and development were also presented in this chapter.

An overview of the studies reviewed in this chapter points to the fact that TVET provision involves a complex delivery system, thus requiring multidisciplinary and inter-professional teams to avoid gaps to achieve REE provision. Furthermore, there is paucity of empirical research on REE provision globally, with specific regard to Nigeria, though some attempts have been made to isolate the factors that might improve the overall outcome, but the area has not received enough attention. The implication is that most studies reviewed only dwell on certain aspects of TVET provision without due consideration of the collaboration amongst stakeholders in a single study such as this, thereby creating room for more empirical research on specific interventions describing in details the “what, how and why” of REE provision.

More so, none of the studies reviewed employed the problem-solving approach offered by the CBPAR. Having conceived these gaps, this study specifically seeks to intervene by answering the “what, how, and why” of REE TVET provision using the CBPAR approach. This is to ensure the development of an indigenous based model suitable for the Nigerian context with the view of improving TVET provision in technical colleges. The choice to embark of this study is timely, as it is in line with the call made by the Senate President in Oji (2013) for an indigenous model that will mitigate some of the challenges encountered educationally in Nigerian technical colleges.

## **CHAPTER 4**

### **RESEARCH METHODOLOGY**

This chapter is focused on the methodology that guided the process of data collection and analysis. The chapter further discusses the research design, rationale and characteristics of the design, sample and sampling technique, data collection tools, and method of data analysis, among others. Finally, the chapter concludes by discussing the issues that relate to ethics and the relationship between the researcher and participants. In this chapter, the research methodology of the study is presented.

Research methodology, according to Henning (2004), is an articulated group of techniques that complements each other to fulfil the requirements of the study, in as much as the technique could lead to the generation of the required data that will produce answers to the questions posed in the study. Further, Koshy (2005) described research design and methodology as all activities and arrangement that lead to the main study, which includes the preparations and procedures that a researcher navigates in executing the research.

#### **4.1 RESEARCH DESIGN**

Research design, according to Van Wyk (2012), refers to the entire strategy for linking the different components in a comprehensible and logical manner to successfully address a research problem. The implication is that the research design articulates the type of data required and the best method to collect and analyse the data collected in order to provide answers to the research questions under investigation (ibid). In the same light, Burns and Grove (2003, p. 195) described research design as a “blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings”. The basic aim of a research design is to respond to the problem at hand, so in planning your research design, you must focus on the topic, research question, the scope and the type of data required. A research design gives your pathway and systematises the research process. According to Harwell (2011), ascertaining a research design is imperative because it informs the key features of the study, which varies for qualitative, quantitative, and mixed methods. One common linear characteristic of research design is that at one or more points in the study process, data are collected, either numerical or textual.

Since the central aim of this study is to understand the role of stakeholder partnerships with regard to TVET provision in Nigerian technical colleges, a mixed method design involving an intervention approach (CBPAR) was employed.

In the next section, a brief description of the research design adopted for the study is presented.

## **4.2 MIXED METHODS**

According to Creswell (2012) as well as Venkatesh, Brown, and Bala (2013), mixed method research (MMR) is a research technique that combines both quantitative and qualitative in collecting and analysing data in a single study either concurrently or independently with the intent to understand a research phenomenon of interest. Arthur, Waring, Coe and Hedges (2012) contend that MMR has the characteristics of both quantitative and qualitative approaches. Creswell and Plano Clark (2007, p. 5) provided a comprehensive definition of mixed methods as follows:

*Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.*

## **4.3 RATIONALE FOR MIXED METHODS RESEARCH**

According to Creswell (2008, 2012) there are basically three reasons why mixed methods may be considered in a particular study. This is namely:

- When both quantitative and qualitative data, together, provides a better understanding of your research problem than either type by itself;
- When one type of research approach (quantitative or qualitative) is not capable of addressing the research problem or provide answers to the research question that guides the study;
- Pragmatism-practicality; multiple view points; biased and unbiased; subjective and objective;
- To incorporate a qualitative component into an otherwise quantitative study; and



- To build one phase of a study to another, that is explore qualitatively then develop an instrument or follow-up a quantitative study qualitatively to obtain more detailed information about a phenomenon.

According to Creswell and Plano Clark (2011, p. 54), the key principles to follow while designing a study in mixed methods include:

- a) Deciding on the type of design;
- b) Identifying the design approach to use;
- c) Matching the design to the research problem, purpose, and questions; and
- d) Being explicit about the reason for using mixed methods.

MMR, as posited by Soffer and Hadar (2007), consists of six different strategies, namely explanatory sequential design, exploratory sequential design, transformative sequential design, concurrent triangulation design, concurrent nested design, and concurrent transformative design.

This design is deemed appropriate in addressing the research objectives set in the study, since it guarantees the achievement of a complementary view about the identified problem (Soffer & Hadar, 2007). Two major things necessitated the choice of this design; firstly, there is paucity of evidence with regard to TVET provision. Secondly, TVET provision involves a complex delivery system; hence requires a multi-stakeholder representation to avoid any gap that will compromise the achievement of a REE TVET provision. This supported the need for an explanatory sequential mixed method design involving a CBPAR approach.

#### **4.4 CHARACTERISTICS OF MIXED METHOD RESEARCH**

According to Creswell (2011), the evolution of mixed methods is an antecedent of the triangulation of qualitative and quantitative methods. Greene et al. (1989) identify some characteristics of mixed methods designs that can be useful to researchers as they determine the type of mixed method design that will be applied. These characteristics, according to them, include methods, phenomena, paradigms, status, implementation timing, and study (ibid). They also contribute to an increased understanding of mixed methods study as they focus on purpose, paradigm issues, data analysis strategies, and usefulness.

Therefore, considering the reasons outlined above, a mixed methods approach was deemed appropriate in addressing the objectives of the study, as delineated in both preliminary and main sections below.

### **Preliminary Study**

- i. To explore the extent of TVET provision in technical colleges in Nigeria in six geopolitical zones with regard to Engineering Trades programmes
- ii. To compare TVET and general education schools provision in the six geopolitical zones
- iii. To determine the level of efficiency of a few selected TVET institutions across four geopolitical zones in Nigeria.

### **Main Study**

- i. To identify the type of partnerships that exists amongst academia-industry-government with regard to issues of REE in the provision of TVET; and
- ii. To strengthen existing partnerships and develop a new model of partnership for efficient TVET provision in technical colleges using CBPAR.

With regard to the objectives listed above, a mixed methods approach became imperative for this study, this is because it gives room for the researcher to elaborate on or expand on the findings of one method with another method (Creswell, 2009) .

In order to achieve the objectives of the study stated above, the study was divided into two sections namely, the preliminary and the main study. The preliminary study is based on a quantitative approach and addresses the first three objectives, whilst the main adopted a mixed method and qualitative approach respectively, thus addressing the second and last objectives.

The preliminary study consists of three questions which aimed at addressing the first three objections, thus representing phases one, two and three respectively. The main study comprised of two phases which also represents questions one and two respectively as stated below.

### **Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

## **Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation?  
If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

To address the research questions outlined above, an explanatory sequential design mixed method strategy was adopted.

Explanatory sequential design is such that the researcher starts by collecting and analysing the quantitative data, thereby using the results to shape data collection and analysis of the qualitative phase (Creswell, 2012). Data for the quantitative phase (preliminary study) for research question one two and three, were collected using desk reviews, document analysis and closed-ended questions respectively. This was followed-up by the main study whose data was generated using an open-ended questionnaire and the CBPAR approach, addressing questions one and two respectively.

## **4.5 PRESENTATION OF INSTRUMENTS**

### **4.5.1 Desk Review**

Desk review research, according to Dingemane (2017), is a method applied in gathering facts and existing information that aids the provision of data needed to answer the question posed in a study. She further remarks that performing a good desk review entails following the selection of some good keywords/search terms; finding relevant sources, selecting the best facts that suits the research problem or question, and processing the facts gathered. In the words of Junega (n.d), desk review is very effective and can be conducted in the starting phase of a study to provide information which can be used as benchmark in the research process.

### **4.5.2 Document Analysis**

Document analysis, according to Bowen (2009), is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning in a subject matter. Although document analysis is predominantly applied as a data collection tool in qualitative research, the focus in this study is on the nature of data generated, which is numeric and statistical. Hence, this follows this argument that both quantitative and qualitative have their distinct features in theory, but that in practice they complement each other.

### **4.5.3 Survey**

As remarked by O’Leary (2014), surveying is the process by which researcher generates data through the use of a questionnaire. Survey research, according to Murray and Beglar (2009), is very informative; it is used where full descriptions of people and situations are sought and in investigation of attitudes and beliefs. It is adjudged a popular form of research in the social sciences because researchers in these fields are often interested in what people believe about an issue, their emotional reactions to various situations, and their opinions about people and events. Questionnaires and interviews are used in determining that relationship between these variables (Murray & Beglar, 2009; Bryman, 2012). In the words of Cohen (2013), a questionnaire is the instrument for collecting primary data in a given study.

In addressing responding to the research question three in the preliminary study, and question one in the main section, a questionnaire was used to assess the efficiency of TVET provision in four geopolitical zones, and the existence of partnerships.

### **4.5.4 Community Based Participatory Action Research (CBPAR)**

As mentioned earlier, CBPAR was adopted for the last phase. According to Burns, Cooke, and Schweidler (2011), CBPAR is considered an approach or orientation to conducting research rather than a method. In agreement with the assertion, Bergold and Thomas (2012) reported that CBPAR is aimed at planning and conducting research on those problems being investigated. It is also described as “a collaborative approach that equitably involves community members, organisational representatives, and researchers in all aspects of the study in proffering solution to the problem at hand” (Bordeaux, Wiley, Tandon, Horowitz, Brown, & Bass, 2007). In the words of Banks, Armstrong, Carter, Graham, Hayward, Henry... and Strachan (2013), CBPAR is considered a research that entails some level of active involvement of a range of community stakeholders and generally operates from a value base that is derived from a commitment to sharing power and resources and working for the beneficial outcomes for all involved.

Burns, Cooke, and Schweidler (2011) argued that CBPAR offers a framework that begins with a community issue, proposed action, or strategy, and then supports or enhances this action with research that is community based and engaged. CBPAR is applied research, as it seeks to change issues that are critical to communities and focuses on engaging community members in research directed at addressing their social concerns (Burns, Cooke, & Schweidler,

2011). It is also described as collaborative research, education and action used to gather information to use for change on social or environmental issues that mainly involves people who are concerned or affected by such problem taking a leading role in producing and using knowledge about it (Pain, Whitman & Milledge, 2012).

The methods employed in the CBPAR approach in this study consisted of minutes of meetings, individual and focus group interviews.

#### **4.5.5 Minutes of Meetings**

In qualitative research, minutes of meetings are regarded as documents through which data is generated, having determined the objective of such study (Anderson, 2010). According to Al-kathiri (n.d), meeting minutes are written documents where qualitative researchers obtain either public or private records about a site or participants in a study, which are in participants' words and are readily available for analysis. Myers puts it that written documents can be extremely valuable as they often provide evidence for things which people sometimes have difficulties remembering, for example, the exact date of a specific event, or attendee list at a particular meeting, and so forth (Myers, 2008). Another scholar puts it that minutes of meeting is one of the methods of data collection in MMR, although they may not be publicised, but are probably most valuable when analysed together with other instruments used for data collection (Barbour, 2013). This, according to her, allows the researcher to clarify the process through which face-to-face discussion comes to be interpreted into organisationally-endorsed text.

Discussions with community members during the planning and implementation of the CBPAR intervention programme were taken in the form of meeting minutes.

#### **4.5.6 Individual Interviews**

An unstructured open-ended interview was adopted as a method for data collection. This method was deemed fit in order to allow stakeholders involved in the implementation to share their unrestricted views about the programme. According to Gubrium and Holstein (2002, p. 35), unlike the structured or closed-ended interview, the open-ended allows for flexibility between the interviewer and the interviewee in terms of planning, implementing and organising the interview content. However, Dörnyei (2007, p. 136) stated that the interviewer needs to be careful in following up interesting developments and allowing the interviewee to elaborate on various issues. A 'good' qualitative interview has two major characteristics, namely: "it flows naturally; and it is rich in detail"(Dörnyei, 2007, p. 140). Stakeholders who were interviewed were allowed to flow naturally, so as to ensure the richness of data generated.

Community members that participated were interviewed on telephone, to share their experience on the intervention on a weekly basis (van Teijlingen, 2014).

#### **4.5.7 Focus Group**

Focus group was adopted because it is a recognized qualitative inquiry tool (Morgan, Fellows, & Guevara, 2008). Focus group, according to Descombe (2007, p. 115) “consists of a small group of people, who are brought together by a researcher to explore attitudes and perceptions, feelings and ideas concerning a topic”. In Abawi’s words, focus group is a structured discussion with the aim of stimulating conversation around a specific topic (Abawi, 2013). He further points out that a focus group discussion gives us the possibility to validate one individual’s opinion with other opinions gathered (ibid.). On the why and when to apply a focus group discussion, Dilshad and Latif (2013) argued that a focus group may be necessary when the researcher lacks substantial information about the subjects being studied; to give a voice to the marginalized segment of the society; and to examine sensitive issues. According to Myers (2009) focus group avails a group of individuals the opportunity to share their views on a particular subject of interest based on certain shared experiences. Its purpose is to produce answers to the ‘how’ and ‘why’ that yield rich multidimensional, nuanced and even thought-provoking descriptions of how people attribute meaning to, and interpret their understanding (Kamberelis & Dimitriadis, 2011).

To validate the responses of community members who participated in the intervention programme, four different focus group discussions were held with TVET trainers, industry employers and students from the two trades sampled.

As mentioned earlier, the study followed a sequential approach of the mixed methods technique where the quantitative phase preceded the qualitative phase. In the next section, I present the mixed methods protocol of a sequential design.

#### **4.6 SAMPLE AND SAMPLING METHOD**

As mentioned earlier, this is a sequential mixed method design, and as such, the sample and sampling method was carried out according to the design protocol, that is quantitative before qualitative.

#### **4.6.1 Preliminary Study (Quantitative)**

This section consists of three phases, namely phases one, two and three. Samples for these phases were carried out accordingly.

##### **4.6.1.1 Phase 1**

The sampling in this phase was designed mainly to respond to research question one. Hence, a purposive sampling approach was adopted in reviewing a website relevant to providing the information needed to respond to the question asked. Celano (n.d) argued that the theoretical application of quantitative research leads to a preference for a probability sampling technique; however, in practice, both quantitative and qualitative approaches often combine or draw on elements from each other. Besides, the nature of data is numeric and statistical, which are typical characteristics of quantitative study. Therefore, the NBTE website was selected, since it has the relevant information needed with regard to TVET provision in Nigeria for institutions that fall outside University Education.

##### **4.6.1.2 Phase 2**

Similar to Phase 1 above, purposive sampling was also adopted for this phase, as only documents relevant to answering the research question were selected. Bell (2010, pp. 131-132) argued that document selection should be strictly based on its relevance and the time available to execute the study. In agreement with the above assertion, documents from NBTE and a statistical report on transforming secondary education in Nigeria were selected.

##### **4.6.1.3 Phase 3**

The sampling strategy proposed for this phase was the stratified random sampling which quantitative research advocates (Migiro & Magangi, (2011). However, reaching the desired participants became difficult, hence the need for convenience sampling. The choice of convenience sampling method was based on the following factors, namely:

- Security concerns in the Northern part of the country;
- Lack of access; and
- Lack of willingness from some respondents to participate in the study.

An argument in favour of the decision above puts it that for intervention studies such as this, the reliance on random sampling poses a serious challenge to the study (Shadish, Cook, & Campbell, 2002). Concurring with this, Polit and Beck (2010) posited that in a study in which participants are randomly sampled, cooperation is rarely perfect; hence, the need for a

sample strategy that avails the researcher the opportunity to get the right respondents to accomplish the study.

Convenience sampling technique, as reported by Explorable.com (2009), has its application in both qualitative and quantitative research, although it is frequently used in quantitative studies. According to (Dörnyei, 2007), convenience sampling technique is a type of non-probability or non-random sampling method whereby members of the target population that satisfy certain practical criteria, such as accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. It is also referred to as the researching of participants of the population that are easily accessible to the researcher (Given, 2008). As noted by Etikan, Musa, and Alkassim (2016), in all research, the possibility to include the entire population is always difficult because the population is almost finite. Explorable.com (2009) attributed this to the reasons why most researchers opt for convenience sampling method, being that it is easy, fast cheap, and the participants are readily reachable.

The purpose of this selection is to provide answer to research question two, which sought to determine the level of efficiency of TVET provision both in Federal and State technical colleges in four geopolitical zones.

To gather data needed to answer the research question at this phase, three major sources were considered as illustrated in table 4.1 for information gathering, including:

- Technical college principals,
- Heads of departments in Engineering trades (HODs); and
- Engineering trade teachers



Table 4. 1 Sample distribution for Phase 2 of the Preliminary Study

ZONE	S/N	State	Name of TVET institution	Respondents			Total State
				P	HOD	T	
<b>South-South (SS)</b>	1	Akwa Ibom	UTC, Ikpa, Eket (S)	1	1	1	3
	2	Bayelsa	<b>FSTC, Tungbo* (F)</b>	1	1	1	3
	3	Cross River	GTC, Mayne Avenue, Calabar (S)	0	1	0	1
	4	Delta	ITC, Isele-Ukwu (S)	1	1	1	3
	5	Edo	GSTC, Irrua (S)	1	1	1	3
	6	Rivers	GTC Port-Harcourt (S)	1	1	1	3
<b>SS Total</b>				<b>5</b>	<b>6</b>	<b>5</b>	<b>16</b>
<b>North-Central (NC)</b>	1	Benue	BSUSTC, Markurdi (S)	0	0	1	1
	2	Kwara	GTC, Erin-Ile (S)	1	1	1	3
	3	Nassarawa	GTC, Assakio (S)	1	1	1	3
	4	Niger	GSTC, Minna (S)	0	1	1	2
	5	Plateau	GSTC, Bukuru (S)	0	0	1	1
	6	Abuja	GSTC, Garki (S)	1	1	0	2
	7	<b>Abuja</b>	<b>FSTC, Orozo* (F)</b>	0	1	1	2
<b>NC Total</b>				<b>3</b>	<b>5</b>	<b>6</b>	<b>14</b>
<b>South-West (SW)</b>	1	Ogun	GSTC, Ogun (S)	1	1	1	3
	2	Ondo	GTC, Owo (S)	1	0	0	1
	3	Osun	GTC, Oshogbo (S)	1	1	0	2
	4	Oyo	GTC, Ibadan (S)	1	1	1	3
	5	Lagos	<b>FSTC, Yaba* (F)</b>	0	1	0	1
<b>SW Total</b>				<b>4</b>	<b>4</b>	<b>2</b>	<b>10</b>
<b>South-East (SE)</b>	1	Anambra	GTC, Onitsha (S)	0	1	1	2
	2	Ebonyi	GTC, Abakiliki (S)	0	1	1	2
	3	Imo	GTC, Owerri (S)	0	1	0	1
	4	Anambra	<b>FSTC, Awka* (S)</b>	0	0	1	1
<b>SE Total</b>				<b>0</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>Grand Total</b>		<b>22</b>		<b>12</b>	<b>18</b>	<b>16</b>	<b>46</b>

NB. Principal is denoted as 'P'; Head of Department as 'HOD'; and Teacher as 'T'

#### 4.6.2 Main Study (Quantitative and Qualitative)

Sampling at this stage follows the explanatory sequential design. That is, the analysis at Phase 3 of the preliminary study shaped the sample choice for the main study.

The section is divided into two phases, namely Phases 1 and 2. Sampling strategy in the main study was also carried out according to the different phases as explained below.

##### 4.6.2.1 Phase 1

As mentioned earlier, this phase of the main study is based on a mixed methods approach, and comprised stages one and two, each representing quantitative and qualitative approaches respectively. Sampling for both stages was based on the same rationale as for Phase 2 in the preliminary study above – convenience. It aimed at providing answers to research question one of the main study, which centres on ascertaining the existence and type of partnership which the colleges surveyed are involved in.

#### 4.6.2.2 Phase 2

Sampling at this phase was aimed at responding to research question two, which is based on how CBPAR can be used to strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges.

The method adopted for this phase was the purposive sampling strategy. Kumar (2011) describes purposive sampling as a sampling method whereby a researcher selects participants, based on the fact that they possess the ability to provide information needed to answer the research questions set in the study. Sampling at this phase was aimed at responding to research question two, which is based on how CBPAR can be used to strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges.

The sample for this phase consists of stakeholder representatives from the following categories of institutions, namely:

- **Academia (Technical College)**
  - Principal
  - Engineering trades HODs
    - Electrical installation and maintenance; and
    - Motor vehicle mechanics
    - Electrical installation and maintenance trade students
    - Motor vehicle mechanics trade students
- **Industry Employer Representatives**
  - Senior engineer, Rivers State Vegetable Oil Company
  - Director, Mic Vitto Vehicle Lab
- **Government Representatives**
  - Deputy Director (Projects), Rivers State Senior Secondary Schools Board
  - Project Manager, State Economic Empowerment for Results (SEEFOR)

A total number of 19 stakeholders from the above listed categories of institutions were purposively selected in this phase from the TVET community in GTC, Port Harcourt (GTC, PH), in Rivers State.

The choice of GTC, PH as the data site for Phase 2 of the main study is premised on the following:

- GTC, PH is involved in partnership with other organisations.
- Amongst the TCs identified as being involved in partnerships with other organisation, GTC, PH is the institution with the lowest overall index of efficiency at 23%. Furthermore, its overall index of efficiency value seems not to have one-to-one relation with the partnership involvement. Hence, the curiosity to unravel the cause of such phenomenal revelation despite the College involvement in partnership propelled the choice of GTC, PH.
- Participants from GTC, PH showed willingness to participate in the study
- Amongst all TCs involved in partnership, GTC, PH is the only institution with 100% participation (all three participants present).
- Access to the data site was granted without hesitation.

The table below shows the sample distribution for this phase.

Table 4. 2: Sample distribution for Phase 2 of the Main Study

Stakeholder Category	Stakeholder	No. of Stakeholders	Total no. of Stakeholders per Category
<b>ACADEMIA</b>	Principal	1	15
	Electrical installation and maintenance teacher	1	
	Motor Vehicle Mechanics HOD	1	
	Electrical Installation and Maintenance Trade students	6	
	Motor Vehicle Mechanics Trade students	6	
<b>INDUSTRY</b>	Deputy Director (Projects) Rivers State Senior Secondary Schools Board	1	2
	One Project Manager State Economic Empowerment for Results (SEEFOR)	1	
<b>GOVERNMENT</b>	Senior Engineer Rivers State Vegetable Oil Company (RIVOC)	1	2
	Director Mic Vitto Vehicle Lab	1	
<b>Grand Total</b>		<b>19</b>	<b>19</b>

## **4.7 METHODS OF DATA COLLECTION**

Data collection techniques are tools adopted by the researcher to gather the data needed to answer a research question; significantly, in educational research, the tools include questionnaires, tests, interviews, observations, and focus group discussion (Lauer, 2007). The strength and weakness of the different methods of data collection must be addressed by the researchers so as to conclude on the best method to adopt (Cohen, Manion & Morrison, 2011). Depending on the type of research, data collection allows us to collect information that we need in order to achieve the objectives of our study (Abawi, 2013). According to Creswell and Plano Clark (2007, p. 121), data collection strategies in sequential mixed method designs involve collecting data in an iterative process, whereby data is collected in one phase to contribute to the data collected in the next phase.

In order to generate data needed to answer the research question set in this study, the process was carried out in two distinct phases namely the preliminary and main sections. The preliminary study consists of three questions, whilst the main study comprises two, and data was collected according to the respective sections. For the first, second and third phases of the preliminary study, data was collected through desk review, document analysis, and closed-ended questionnaires respectively. Data for Phase 1 and Phase 2 of the main study, was generated using semi-structured questionnaires, CBPAR (minutes of meetings, personal and focus group interviews) as discussed below.

### **4.7.1 Preliminary Study**

This section involves three phases, which was carried out to respond to research questions one, two and three respectively. Phase involved the use of desktop review, document analysis and closed-ended questionnaires. These phases are elaborated upon in the section below.

#### **4.7.1.1 Phase 1: Desk Review**

Data collection for this phase was executed through a desk review of the NBTE website (NBTE, n.d) on the number of technical colleges approved for each states of the six geopolitical zones in Nigeria.

#### **4.7.1.2 Phase 2: Documents Analysis**

Data for the second research question in Phase 2 of the preliminary study was generated through the analysis of the NBTE page on the number of TCs and a statistical report,

Transforming Secondary Education in Nigeria by Ford Foundation (NBTE, n.d; Eze, Nwaura & Ngenda, 2014). The purpose is to compare TVET provision and that of general education across the six geopolitical zones

#### **4.7.1.3 Phase 2: Close-ended Questionnaire**

The data set for the third research question was generated through the use of a closed-ended questionnaire which explored the internal efficiency of TVET provision. Closed-ended questionnaires are questions that allow the respondents to choose only from the options provided (Land, 2010). The questionnaire consisted of seven facets of interests and 47 indicators, as illustrated in chapter 4 (IDEAS, 2008). This questionnaire was used to evaluate the efficiency of TVET provision for the engineering trade in four geopolitical zones, namely South-South, North-Central, South-West, and South-East.

#### **4.7.1.4 Questionnaire Design**

The closed-ended questionnaire adopted and used in this study was also applied by Infotechs IDEAS (Pvt) Ltd (2008) to assess the efficiency of 50 governmental and non-governmental TVET institutions. The questionnaire was slightly modified to include three parts, A, B, and C. Part A of the questionnaire began with demographic and institution information, whereas part B focused on the nature of TVET provision. Furthermore, part B included eight items that sought to ascertain the extent of TVET provision in each of the technical colleges surveyed. The first seven items spoke to the facets of interests with their corresponding number of indicators, description of each indicator, definition, respondent's response, and source of data, whilst the eight and last item focused on any additional information that may be needed beyond what the instrument covered. The seven facets of interests and number of indicators include:

- ***Trainees***, six indicators that focuses on enrolment target and ratio, among others;
- ***Staff utilisation***, five indicators that centre on the number of academic staff per cadre, among others;
- ***Training courses***, which has eight indicators that speak to the number of courses offered in the colleges, among others;
- ***Training facilities and utilisation***, which foregrounds nine indicators that speak to training facilities and their utilisation;

- **Financial performance:** nine indicators that focus on college budget information, cost per trainee information and revenue generation, among others.
- **Performance management:** five indications that focus on implementation plans and performance reviews with staff, among others;
- **Services facilities:** also has five indicators that talk to the extent of adequacy of laboratory, library and safety facilities, among others; the last item of part A included an open-ended item with the phrase (*any additional comments*) this is such that if the respondent has any additional information that is not covered by the instrument they may include it.

Part C of the instrument explores questions on the college's involvement in partnership. This part of the instrument is mainly to address the third research question, which is based on both quantitative and qualitative approaches. The instrument contains nine items that covers:

- Existence of partnerships;
- Types of partnerships,
- Roles of partners,
- Relevance/effectiveness/efficiency of partnerships; and
- Sustainability of these partnerships.

#### **4.7.1.5 Validity and Reliability of Research Instruments**

The validity of an instrument, according to Thatcher (2010, p. 125), is referred to the extent to which that tool measures what is intended to measure, whilst reliability refers to the degree of consistency of an assessment tool to produce stable results when applied in similar situations but in different circumstances (Twycross & Shields, 2004; Phelan & Wren, 2014).

The validity of Part B of the assessment was not a problem since it was adopted from IDEAS (2008) without any change made on the content. However, to ensure the reliability of the instrument used in the study, a pilot study was conducted on two different technical colleges in Rivers State, South-South. And one each from Federal and State owned institutions. The findings of the pilot study never indicated the need to make changes to the content of the instrument, rather on the sampling strategy.

#### **4.7.1.6 Piloting**

According to Creswell and Plano Clark (2011), there is a need to administer any data collection instrument first to a sample for validation. This is to reduce the likelihood of missing data by revealing questions that may be misunderstood or may make respondents uncomfortable (Bryman, 2012). It was further recommended that a pilot study be conducted on a small set of respondents with characteristics comparable to the population studied (Bryman, 2012).

In order to escape the pitfalls inherent in the methods adopted for this research, a pilot study was conducted in two different technical colleges in South-South. This was carried out to test the research instrument. Six different sets of two each were administered to the six participants from the two mentioned technical colleges. This was to ensure that the piloting is done in the same way the main study will be done (Dube, 2013). The result of the pilot conducted showed the need to adopt a sample strategy that will facilitate effective data gathering. The following two major issues were brought to the fore:

- Lack of willingness by respondents to participate in the study; and
- Lack of understanding of some items in the questionnaires

These problems were resolved as follows:

- Firstly, having the understanding that refusal by respondents to participate would affect the sample size, I resorted to convenience sampling, a non-probability sampling, against the stratified random sampling techniques proposed.
- Secondly, the issue of lack of understanding of some questions was handled through the orientation given to research assistants in the area where the instruments were administered by research assistants. A further strategy adopted was to speak directly with the respondents by phone in cases where more clarity was needed.

In the end, the sample strategy enabled me to gather the relevant data needed to answer the research questions set in the study. Although similar issues relative to the first listed above occurred, but since the sample strategy had changed, I opted for respondents from colleges that were available and willing to participate.

#### **4.7.1.7 Administration of Questionnaires**

Considering the nature of the study, that it covers a wide scope, it is evident that the researcher cannot carry out the study in isolation without involving other persons. Some

categories of persons were recruited to aid in the execution of the study. The categories include National Youth Service Corps (NYSC) members, technical colleges teachers, colleagues from my office, university and college of education, among others.

A total number of 24 research assistants were recruited. Seven were from North-Central, one from North-East, two from North-West and South-East each, seven from South-West, and five from South-South. Their recruitment was based on the following factors: language, proximity to the colleges, availability of finance, and knowledge about the study. A brief explanation of these factors is outlined below.

- **Language barriers:** Nigeria is a multilingual state, therefore the possibility that one researcher could speak all languages was unlikely. As a result of this, individuals from various states were recruited to avoid the challenges that could result from language difficulties. There is a programme undertaken by Nigerian graduates before they will have full access to the labour market; the programme is known as NYSC. It is organized in such a manner that people from all over Nigeria take part in it. As someone who has passed through the process, I had to recruit one person from the North West to cater for two states, Jigawa and Kano States, whilst another person was recruited for Katsina. However, from other states, non-NYSC members were also recruited. The major task carried out by these persons recruited were to administer and retrieve the questionnaires.
- **Proximity to the colleges:** As in Rivers State, these Colleges are spread apart from each other, so a form of snowball sampling was used to trace those who are very close to any of the colleges in the various states where the study was conducted. This was done to avoid excessive expenditure.
- **Availability of finance:** The rationale behind the proximity to colleges was the availability of finance. The research employed all avenues to avoid incurring debt as a result of this study, since it was carried out without any financial assistance from any organisation.
- **Knowledge about the study:** Recruiting a total novice will amount to investing much money. This implies that you will have to train the person for a longer period compared to how long it will take you to train someone who already has a little knowledge about the study (TVET).



## **4.7.2 Main Study**

As mention earlier, this section consists of two research questions which are represented in phases one and two respectively. The first Phase 1s further divided into two stages based on the nature of data collected. Stage one deals with quantitative data, whilst stage two is qualitative. Both stages of Phase 1 respond to research question one of the main study. On the other hand, Phase 2 responds to research question two, and is based on qualitative approach. Below are the details of the main study.

### **4.7.2.1 Phase 1: Semi-structured questionnaire**

#### **4.7.2.1.1 Stage One: Close-ended Questionnaire**

Data at this phase was collected in two stages using a closed-ended questionnaire from technical college principals, Engineering trade subjects HODs, and teachers, on the existence of partnerships between their colleges and other organisations/institutions.

#### **4.7.2.1.2 Stage Two: Open-ended Questionnaire**

An open-ended questionnaire was used to collect data at this stage of partnerships in which these technical colleges are involved. Open-ended questions are items in a survey with unstructured questions, and respondents are allowed the freedom to express themselves in their own words in response to the questions that are being asked (Popping, 2015).

### **4.7.2.2 Phase 2: CBPAR**

This phase specifically responds to research question two of the main study, and was based on CBPAR. Data in this phase was collected through a written and recorded account of discussions with stakeholders during this planning and implementation of the CBPAR intervention programme in the form of minutes of meeting, personal interviews and focus group discussions with implementation stakeholders.

The minutes of meeting served dual purposes, first, it was used both as instrument for data collection, and also to keep a record of all scheduled events during the planning and implementation of the CBPAR intervention programme.

Data generation at this phase was based on a CBPAR approach in order to answer research question two in the Main Study. Since CBPAR is concerned with collaboration amongst stakeholders within the same community throughout the research process, in proffering solutions to practical problems its members, this gave room for the introduction of the theoretical framework employed in the study – the Triple Helix model of academia,

industry, and government relations. The application of the Triple Helix in this phase aided in constituting the TVET stakeholders concerned. Having constituted the needed community members through the guidance of the THM, the entire stakeholders were involved in the five stages of the CBPAR Cycles of partnership engagement, project design and implementation, data collection, analysis, and reporting of findings. The THM was used for role identification amongst the stakeholders represented, namely academia, industry and government. During the planning, each of the stakeholders made input that met the objectives of technical college programme regarding relevance, effectiveness and efficiency. This enabled data collection from stakeholders within these institutions.

According to Bertram and Christiansen (2014), data collection in participatory research is dependent on participants' experiences and thus should follow the methods they can understand and apply. This, they report, may be unusual data collection methods such as photography, diaries or blogs. Bergold, and Thomas (2012) argue that new methods of data collection can be developed that are appropriate to the concrete research situation and the research partners

According to Banks, Armstrong, Carter, Graham, Hayward, Henry... and Strachan (2013) CBPAR is considered a research that entails some level of active involvement of a range of community stakeholders and generally operates from a value base derived from a commitment to sharing power and resources and working for the beneficial outcomes for all involved. . It is also described as “a collaborative approach that equitably involves community members, organizational representatives, and researchers in all aspects of the study” (Bordeaux et al., 2007).

The CBPAR framework, according to Burns, Cooke, and Schweidler (2011), begins with a community's issue, proposed action, or strategy and then supports or enhances this action with research that is community based and engaged. For this study, phase involved five stages of the CBPAR as outlined in table 4.1 below:

Table 4. 3: CBPAR intervention programme implementation plan

DATE	ACTIVITY	VISIT	PURPOSE	INSTRUMENT	CBPAR Cycle Model (Burns et al., 2011)
21/03/2016	Meeting with College Principal	1 <sup>st</sup>	Invitation of identified stakeholders (SHs) College principal, SEEFOR Representative, RSSSB, HODs MVMT & EIMT, and AIE	Phone call and personal invitation	Partner engagement (Step 2)
6/5/2016	Meeting other SHs	2 <sup>nd</sup>	Planning and designing of intervention program for MVMT	Pre-meeting minutes	Project design (Step 1)
31/05/2017	Meeting with HOD EIMT/Principal for a new MVMT Teacher	3 <sup>rd</sup>	inspection of implementation site		Project design (Step 1)
8/6/2016	Teaching MVM Trade by MVMT HOD & Industry personnel Met with MVMT HOD, Auto industry employer and students	NO VISIT 4 <sup>th</sup>	Implementation of the intervention programme for MVMT	Chalkboard, OBD scan tool, and equipment	Project implementation (Step 1)
16/06/2017	Teaching of EIMT by EIMT HOD & Industry personnel	5 <sup>th</sup>	Implementation of intervention programme for EIMT	Chalkboard, Three-Phase electric motor, and other tools and equipment	
16/06/2017	First meeting with MVM T HOD & Students, and Automobile Industry Employer	6 <sup>TH</sup>	Data collection from MVMT HOD, industry employer and students on their experiences about the intervention programme	Personal interview, Focus Group	Data Collection (Step 3)
30/06/2016	Second meeting with the Teacher & Students-EIMT, and Electrical Industry Employer		Data collection from EIMT HOD, employer and students on their experiences about the intervention programme	Personal interview, Focus Group	Data Collection (Step 3)
27/11/2016	Meeting with SHs	7 <sup>th</sup>	Analysis Presentation of findings	Post-meeting minutes	Data Analysis (Step 4) Reporting of findings (Step 5)

According to Pain, Whitman and Milledge (2012), the recurrent sequence offered by CBPAR in ‘planning’, ‘action’ and ‘reflection’ at various phases of the research process appears to create a logical pathway in the study. This, however, gives the researcher an avenue for modification where necessary.

Table 4.4 above presents the stages in planning and implementing of an intervention programme to bridge the gap between provision and effective stakeholder participation with regard to Engineering trades in Nigerian technical colleges.

Meeting minutes (pre and post intervention), personal interviews, focus group discussions, were all adopted by members of the community as the methods of data collection for this phase.

- Firstly, data from meeting minutes was generated from the meeting held with technical college principals, project manager, State Economic Empowerment for Results (SEEFOR), Deputy Director (Projects), Rivers State Senior Secondary Schools Board (RSSSSB), an automobile industry employer, an electrical industry employer, HODs Motor Vehicle Mechanics and Electrical Installation and Maintenance (TVET trainers). This data was generated during the planning stages of the CBPAR intervention project.
- Secondly, data was collected from Heads of Department Motor Vehicle Mechanics and a teacher from Electrical Installation and Maintenance (and an electrical industry employer, through personal interviews. This was done to ascertain their individual experiences concerning the CBPAR intervention project.
- Thirdly, data here was generated from TVET trainers and technical college students, using focus group discussions. This was also carried out to determine their individual experiences concerning the CBPAR intervention project, and also to validate their responses in the personal interviews.

#### **4.7.2.2.1 Individual Interviews**

Open-ended/unstructured interviews were employed as methods of data collection during the implementation of the intervention programme. The interview questions were formulated around the objectives of the study and the theoretical framework adopted. The questions that informed the interview protocol seeks to understand issues such as: participants' views on the implementation of the intervention programme, roles of various stakeholders in strengthening the technical college programme, and what model to be put in place for the sustainability of the TC programme. A total of four individual interviews were conducted: one each for the two TVET trainers and industry employer as represented below.

- **TVET TRAINERS**
  - **Interview 1:** Head of Department Motor Vehicle Mechanics Trade (HOD MVMT)
  - **Interview 2:** Teacher Electrical Installation and Maintenance Trade (TEIMT)

- **INDUSTRY EMPLOYERS**
  - **Interview 3:** Electrical Industry Employer (EIE)
  - **Interview 4:** Automobile Industry Employer (AIE)

All interviews were conducted by telephone due to the problem of distance, and were recorded for transcription. Each of the interviews lasted about 14-17 minutes.

#### **4.7.2.2.2 Focus Group**

Focus group was one of the data collection tools considered by community members during the CBPAR intervention programme. Questions asked during the focus group discussion were the same as the personal interviews; this was to validate the responses of the different participants from the individual interviews, and to keep focus on the objectives of the study. Similar to the number of interviews conducted, a total of four focus group interviews were conducted in the order listed below:

- **Focus group 1:** HOD MVMT with automobile industry employer
- **Focus group 2:** MVM trade students
- **Focus group 3:** TEIMT with electrical industry employer
- **Focus group 4:** EIM trade students

Four focus groups were conducted in the order outlined above. The essential purpose of the focus group interview with the TVET trainers and employers was to validate their responses from the individual interviews and to elicit the richer data needed to answer research question four, based on their experiences on the CBPAR intervention programme.

For the students, a focus group was conducted to ascertain their experiences based on the intervention programme. Each of the focus group interviews with trainers and employers lasted about 47-50 minutes, whilst that of the students lasted 13-20 minutes. They were all asked to share their experiences on the programme, and where the research was not clear, a probing question was asked for the purpose of clarity. All the sessions were audio-recorded.

## **4.8 DATA ANALYSIS**

Data analysis in this study was carried out based on the research questions that were categorised by phases and stages. Quantitative data generated at various phases was analysed quantitatively, whilst qualitative methods were applied in analysing the qualitative data

generated. Data analysis in mixed method research, as noted by Creswell and Plano Clark (2007, p. 128), consists of analysing the quantitative data using quantitative methods and qualitative data using qualitative methods. It also involves the integration of statistical and thematic techniques with a number of other techniques such as triangulation and data conversion (Teddlie & Tashakkori, 2009).

#### **4.8.1 Preliminary Study**

Data analysis was carried out in three phases, namely phases one, two and three. Phase 1 addressed the first research question, whilst two and three addressed the second and third research questions respectively.

##### **Phase 1**

Quantitative data collected from desktop review was collated and analysed statistically using Microsoft Excel and bar charts. The results were presented in tabular and bar chart form to aid the illustration of the total figures with regard to TVET provision across the six geopolitical zones of Nigeria.

##### **Phase 2**

Similarly, quantitative data collected from the NBTE (n.d) website and the Delberg report by Ford on Transforming Secondary Education in Nigeria (Eze, Nwaura & Ngenda, 2014) was collated and analysed statistically using Microsoft Word, Excel spreadsheets and bar charts. The results were presented in tabular and bar chart form to aid the illustration of the total figures with regard to GES and TVET provision across the six geopolitical zones of Nigeria.

##### **Phase 3**

At this phase, the data collected from questionnaires was analysed statistically using simple percentages in line with the analytical tool with the proposed indicators. The analysis was done to evaluate the efficiencies of TVET provision in technical colleges in four geopolitical zones based on 47 indicators which covers the seven facets of interests namely: trainees; staff utilization; training courses; training facilities and utilization; financial performance; performance management; and service facilities.

The efficiency value of each facet of interest is taken to be the arithmetic average of the values of its indicators. It is further assumed that the composite index of efficiency (Eff<sup>1</sup>) for an institution is the arithmetic average of the values of the seven facets of interest (Int<sup>2</sup>).

$$\text{Eff value of each facet of Int} = \frac{[\text{Sum of the Eff values of corresponding indicators}]}{\text{No. of indicators}}$$

$$\text{Index of Efficiency} = \frac{[\text{Sum of the efficiency values of seven facets of interest}]}{7}$$

The equation above, as proposed by the analytical tool, was used to analyse data generated from the questionnaires. The analysis was carried out in the following stages:

- Stage 1: The completed questionnaires were first sorted into folders representing each geopolitical zone.
- Stage 2: Data from the questionnaires for each facet was keyed into the database created in Microsoft Excel package.
- Stage 3: The entered data were manually and electronically estimated for each facet, and then for all facets for each of the technical colleges in a particular zone.
- Stage 4: Then, the corresponding radar diagram for that technical college was generated electronically using the Microsoft Excel package.
- Stage 5: The overall index of efficiency for that technical college was calculated using the inbuilt Windows calculator by taking the average of the scores of the seven (7) facets of interest.
- Stage 6: the results were then presented in tables and bar charts to help illustrate the totals and percentages associated with the efficiency distribution of TVET provision for each of the technical colleges.

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<sup>1</sup> Efficiency

<sup>2</sup> Interest

The results were further presented in tabular form and bar charts to aid the illustration of the Overall Index of Efficiency TVET provision of the few selected colleges across four geopolitical zones of Nigeria.

The phases and stages presented above were methods adopted for analysing the quantitative data generated in the preliminary study. In the next section, I present the method adopted for analysing both quantitative and qualitative data generated in phases one and two of the main study.

In the next section, I turn my gaze to how analysis in the main study was carried out.

#### **4.8.2 Main Study**

Similarly, data analysis in this section consists of two phases, namely phases one and two. The first phase involved the analysis of both quantitative and qualitative data which was further divided into two stages respectively, whilst the second is on qualitative.

##### **Phase 1**

Data analysis at this phase involved quantitative and qualitative processes. This was divided into two stages, namely one and two. Stage one deals on the quantitative data, whilst two on the qualitative.

##### **Stage one**

Quantitative data collected at this stage was analysed statistically using simple percentages to determine the number of technical colleges into partnerships with other institutions/ organisations. The results were then presented in tables and bar charts to help illustrate the total number of colleges in partnership in each zone across the four geopolitical zones surveyed.

##### **Stage two**

Data collected from the open-ended questionnaires at this stage was analysed using the thematic method and the theoretical framework employed in the study. Thematically, data generated was sorted into categories and reported in the same way. The Triple Helix theory of academia-industry-government relations and the Quadruple Helix Innovation model of academia, industry, government and Civil Society/Users relations were also used in analysing the data generated at this stage. This framework was used to examine the types of partnership



in existence with the TCs surveyed. The reason for this is that this stage is focused on the form of partnerships in which these technical colleges are involved in, with special consideration to the three institutions – academia, industry and government. These institutions are prominent in the best TVET practices (provision) in developed nations of the world.

## **Phase 2**

Data analysis in this phase was carried out in two stages namely thematically and through the use of the Triple Helix theory and the Quadruple Helix Innovation model. Firstly, data was generated through meeting minutes, personal interviews, focus group discussions, and was analysed applying the thematic approach (Clarke & Braun, 2013; Hesse-Biber & Leavy, 2011). These themes and categories emerged from the different stages of thematic analysis, which include for the first stage: transcribing the minutes of meetings, personal interviews, and focus group discussions; for the second stage, reading and familiarisation with interest on items noted. The third stage involved open coding through close examination of the data based on questions asked during the focus group discussions; in the fourth stage, themes were sought; the fifth stage was review of themes that emerged, this preceded defining and naming of themes for subsequent reporting (Hesse-Biber & Leavy, 2011). The themes that emerged were in line with the objectives and concepts related to the study. Themes such as the challenges that inhibit effective TVET provision in TCs, gains of CBPAR, multi-stakeholder partnerships that will improve TVET provision, were brought to the fore from the analysis.

Secondly, the theoretical Triple Helix theory was also applied to make meaning of data generated from various stakeholders during and after the implementation of the CBPAR intervention programme. This was done to ascertain the inputs from each of the stakeholders represented.

## **4.9 FIELD EXPERIENCE**

In this section, I present my field experience. This research will be incomplete if I fail to narrate the experiences undergone. My experiences are presented in themes as discussed below:

**Time:** The proposed time for both preliminary and main study was six months – three months each for the preliminary and the main study. However, on getting to the field, the two sections

consumed six months each against the proposed three. This resulted from such factors as industrial action, among others.

**Colleges in most of the State embarked on series of strike:** The Nigerian nation at this time of this study is facing economic challenges, and as such most sectors suffered non-payment of salaries for their workers. This problem cost me much, as most secondary schools and technical colleges embarked on a series of strike, thereby extending the proposed six months to one year for data collection.

**Distance:** Within each State, these technical colleges are spread wide apart. For example, in Rivers State, the distance between Ahoada, where one technical college is located, to Port Harcourt where another TC is located is about 78,1 km through the Elele-Isokpo-Umueke Road. Then from Port Harcourt, Rivers State to Lagos State where another TC is located is about 756km. The study involved colleges across states and zones, so travelling from one college to another was a difficult one.

#### **4.10 LIMITATIONS OF THE STUDY**

Limitations are matters and occurrences that emanate in a study which are not within the researcher's control (Simon & Goes, 2013). According to them, it is the extent to which every research activity is subject to one or other form of limitation, no matter how well the study is conducted and constructed. However, based on the fact that every study has limitation, its findings cannot be declared "proved" and "disproved" (Simon & Goes, 2013).

- The first limitation encountered in the study relates to finance, distance, and time. Due to limited resources, with respect to finance and distance, the research was restricted to a few samples, as discussed below.
- The second limitation encountered in the study lies on the sample representation. Out of the 155 Colleges, only 22 were selected. There are about 34 trades in technical college programmes, and only two of such trade (electrical installation and maintenance trade together with motor vehicle mechanics trades) were studied. Besides, only the principal, one HOD and a teacher in the two trades were sampled. This approach also constitutes a limitation as to the extent to which the findings could be generalised.
- The third limitation in this study hinged on the fact that the intervention programme was only conducted in one technical college within the South-South geopolitical zone out of the 115 colleges in the four zones studied, due to the problem of security and access, although the findings generate great explanatory richness in the relevance,

effectiveness and efficiency of stakeholder partnerships in TVET provision. Thus, much care must be taken in generalizing the findings of the intervention programme since the CBPAR approach adopted presents the voice of participants from only one GTC, Port Harcourt, and not from the total population. Hence they cannot be generalised or transferred to become the voice of the broader population in other trades and colleges.

- Lastly, the study was limited due to the exclusion of certain stakeholder representation, such as policy makers, leaders from employers' and professional associations, and training provider institutions from both Federal and State level. Adequate representation from the aforementioned quarters would have yielded more insight to the data needed.

The limitations outlined above could be addressed in future research.

#### **4.11 CHALLENGES TO THE CBPAR IMPLEMENTATION PROGRAMME**

Planning and implementation of the CBPAR intervention project encountered some challenges. It was difficult to get all the identified stakeholders to assemble for the intervention project. This study was conducted when Nigeria had some economic issues that led to non-payment of salaries. And as such, all government institutions embarked on a series of strikes. Even when the colleges resumed, some teachers were not willing to take part in the study. These problems affected the study with regard to money expended and the time consumed.

##### **4.11.1 Research rigour**

According to Long and Johnson (2000), every research study is subject to open critique and evaluation. Without this the value of the study, its soundness with regard to methodology, accuracy of findings and the quality of the assumptions made or conclusions reached could be questionable. The findings of my study were exposed to criticisms from other researchers familiar with the field of my study.

##### **4.11.2 Generalisation**

Generalisation, according to Polit and Beck (2010), is the act of reasoning that involves drawing broad conclusions from particular instances, that is making an inference about the unobserved based on the observed. This implies making conclusions on other study situations based on the findings of a study already conducted. From the findings of this study, and considering the focus which explored the relevance, effectiveness and efficiency of

stakeholders' participation in TVET provision in Nigerian technical colleges, this study cannot be generalised to other colleges in Nigeria since the intervention programme was only conducted in one of the TCs. However, it has shed some light on the REE of stakeholder partnership in TVET provision. In contrast, the findings on the efficiency on TVET provision can be generalized, since it covered four out of six zones.

#### **4.11.3 Validity and reliability**

Both reliability and validity are important concepts in research as they are used for enhancing the accuracy of the assessment and evaluation of a research study (Tavakol & Dennick, 2011, p. 53). According to Creswell (2014), there are different connotations to what both mean in the different methods of research. In quantitative research, reliability is referred to as the consistency, stability and repeatability of results; that is, the results from a study conducted by a researcher is considered reliable if it is consistent with identical situations, but in a different circumstance (Twycross & Shields, 2004, p. 36). Validity on the other hand is defined as the ability '...of a researcher to draw meaningful and accurate conclusions from all of the data in the study' (Creswell & Plano Clark, 2007, p. 146). Ensuring objectivity is not an abstract activity, but encompasses all efforts undertaken to ensure accuracy (validity) in all evidences that the research is based on, and the determination to evaluate the trustworthiness (reliability) of the analytical claims made about the truth (Silverman, 2010, p. 366).

Since mixed method research involves a combination of complementary strengths and non-overlapping weakness of the quantitative and qualitative enquiry, assessing the validity of the findings can be particularly complex, yielding a problem of integration (Onwuegbuzie & Johnson, 2006). In view of this, Creswell (2014, pp. 223 & 225) posited that when mixed method is applied to a study, validity can be established through the use of a convergent approach, that is a strategy from the quantitative method, such as 'content validity', and another from the qualitative method, such as triangulation.

For the purpose of this study, content validity was used for the quantitative approach, while credibility and triangulation were adopted for the qualitative phase

#### **4.11.1 Content Validity**

Thatcher (2010, pp. 125 & 141) described content validity as the extent to which an empirical instrument reflects a specific domain of content. On the other hand, content validity

refers to how accurately an assessment or measurement tool taps into the various aspects of a specific construct in question (Study.com, n.d).

To ensure that the study is content valid, the researcher ensured that the data collected, analysed and interpreted addressed the research problem (Thatcher, 2010, pp. 125 & 141).

#### **4.11.2 Credibility**

According to Polit and Beck (2012), credibility deals with the focus of the study and it refers to the confidence in how well the data collected and analysed responds to the purpose of the study. For a study to be credible, the researcher need to pay more attention in the selection of the appropriate (Graneheim & Lundman, 2004).

In other to ensure the findings of the study is credible, there were detailed descriptions of settings, interpretations of participants' views, and themes that emerged in the study.

#### **4.11.2 Triangulation**

Triangulation is one of the ways to ensure that a study is valid in qualitative research. According to Creswell and Miller (2000) triangulation is carried out to increase the credibility and also to check how dependability of a study, which is accomplished through the generation of data from multiple sources. In agreement with this, Punch (2009) and Patton (2002) argued that triangulation strengthens a study by offering the possibility of the combined instruments and competing weaknesses of either instrument.

To conform to the submission of the scholars cited above, alongside improve on the trustworthiness of this study, the researcher triangulated data generated through the use closed-ended and semi-structured questionnaires, minutes of meeting, unstructured personal interviews, and focus group discussion (Bryman, 2008).

### **4.12 ETHICAL ISSUES**

The issue of ethics in social science research according to Burns (2002) became inevitable due to the involvement of humans. Ethics is defined as “a set of principles with widely accepted morale suggested by and individual or group; ethics offers rules and behavioral expectations to subjects, respondents, employees, sponsors, researchers, parents and students (De Vos & 2002, p. 75). According to Miller and Brewer (2003) the issue of ethics hinges on moral justification in one's sense of judgement in the act of doing either right or wrong while interacting with humans, animals or the environment, and must be given the adequate consideration at different stages as the research progresses. In agreement with this, Laws,

Harper and Marcus (2003) concludes that in dealing with participants in a study, the following responsibilities must be considered: the rights of participants involved in the study; the rights of participants in data and publication; circumventing harm to participants; avoiding undue intrusion. Others include: interacting information and obtaining informed consent; right of privacy and camouflage; and fair return of assistance.

#### **4.12.1 Gaining Entry into the Field**

Prior to conducting the study, permission from the respective quarters was sought for. This was done to avoid the issues of ethics emanating from participants in the study. Firstly, in line with UKZN's research ethics, after defending my proposal, and before proceeding to the field for data collection, I applied for ethical clearance from the UKZN Research Ethics Committee which was subsequently granted. Secondly, informed consent was applied on the field at all stages of the research. Informed consent is an expression of anonymity, privacy and confidentiality of the rights of participants/respondents that is involved in a research study (Cohen, Manion, & Morrison, 2011). This implies that the participants taking part in a study must be at will to either take part or withdraw, especially when the purpose of the study is not clearly made known to the participant. De Vos (2002) remarked that there are cases of deception when the purpose of the study is not made known to the study participants.

On the field, the purpose of the study was made known to the stakeholders involved in the CBPAR processes and other respondents involved. Their consent was sort through the use of informed consent letter, which stated clearly their anonymity, voluntary participation, and the right to withdraw at any point in the study. The issue of inducement was also discouraged, as to avoid the introduction of bias in the study.

However, despite the ethical measures put in place some issues bothering on ethics cropped up while on the field. Some of these issues and how they were resolved are discussed below.

- **Fear of being indicted for corruption:** Respondents from some of the colleges visited refused to fill the questionnaires for fear of being indicted. They claim the content of the questionnaires are too sensitive, while some say that since the content is the same for the three respondents no need to complete the questionnaires. To mitigate this problem, I convinced some of the participants that I meant no harm in the study and assured them of confidentiality. In the end some participated, whilst those who refused were substituted

- **Financial gratification:** Due to the non-payment of salaries in some of the states, some of the respondents demanded for some financial gratification before they would take part in the study. This demand took place in three (3) states in two of the geopolitical zones. I considered this a corrupt act that would influence their response, thereby introduce bias in the study. In order to avoid such, I boycotted some of those respondents/participants from such technical colleges, and selected others that were willing.
- **Access to data sites:** Originally, this study was designed to be conducted in the six (6) geopolitical zones, but in the North-West zone, my research assistants were denied access to administer the questionnaires in Jigawa, Kano and Katsina. The reasons being that “I (the researcher) am not an indigene (northerner) of the State, *I have never schooled there, so divulging any information to me will be detrimental to them*”. Since I was denied access to the colleges in the three (3) states listed above. I decided to cut-off that zone entirely, to avoid waste of time and resources.
- **Security Challenges:** There were a lot of challenges in different parts of the country with regard to security, although more prominent to Northern part of Nigeria. My research assistant for Bornu went to trace the technical college in his state, only to discover that all schools and colleges were closed down. The only state where my research assistant succeeded was in Gombe, but the questionnaire was not retrieved because he could not go back there. Every individual has right to life, so I retorted to leaving Northern part of the country out of the study for the fact that I could not guarantee the safety of my research assistants.

#### **4.13 RESEARCHER-PARTICIPANTS’ RELATIONSHIP**

Maintaining a good interaction between the researcher and the participants in a study naturally gives rise to a form of relationship. In view with this consideration, Opie (2004, p. 29) maintained that it is imperative to bear in mind that relationships are multi-faceted and that people who are being studied will form their own interpretation of what is going on, regardless of the researcher’s intention. Based on this, it is an ideal practice to ensure participants are given the much needed information.

In this study, specifically during the intervention programme, the researcher made all effort to create and maintain an atmosphere characterised by trust between himself and all other stakeholders involved. This approach produced a fruitful interaction at every stage of the

intervention programme, thereby yielded the desired data needed to respond to the research questions.

#### **4.14 CONCLUSION**

This chapter presented the research design, the methodology, rational and characteristics of the design, sample and sampling techniques, instruments used for data generation, limitations of the study, validity, and reliability issues among others. The chapter concluded with ethical issues and the relationship between the researcher and participants that took part in the research.

In the next chapter, I present the analysis of data generated in the preliminary study.



## **CHAPTER 5**

### **ANALYSIS OF RESULTS**

### **ON THE PRELIMINARY STUDY**

As mentioned earlier, this study is concerned with largely two key issues; a) the gross neglect of TVET (Eze & Okorafor, 2015) and b) the little emphasis placed on the provision of quality TVET (Jacob, 2006; Akanbi, 2017) within the Nigerian educational/schooling system. This chapter seeks to provide a better and deeper understanding of these issues from an empirical perspective by focussing on the following three questions:

- (i) What is the extent of TVET provision across the six geopolitical zones of Nigeria?*
- (ii) How does TVET provision within these 6 geographical zones compare to the provision of general education schools?*
- (iii) What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?*

The above three questions address the first part of the study, namely, the preliminary phase. The second part entails the main study phase and is addressed in Chapter 6, which further looks at the provision and efficiency of TVET across the different geographical zones against the backdrop of the existence of partnership with other stakeholders. Both the type and nature of the partnership in existence are brought to the fore. The third and last part of the study, the intervention, is addressed in Chapter 7 and it presents the innovation of the study on how we can strengthen and develop new models of partnerships for relevant, efficient and effective TVET systems using community based participatory research.

This chapter is divided into three main sections in line with the three questions posed above, namely, sections 5.1; 5.2 and 5.3. These three sections present the analysis of the first, second and third research questions of the preliminary phase of the study. The chapter concludes with Section 5.4 which provides a summary of all three research questions covered in this chapter.

### **5.1: RESEARCH QUESTION ONE:**

- *What is the provision of TVET in the six geopolitical zones of Nigeria with regard to Engineering Trades programmes?*

In order to gather information needed to provide answers to this research question, data was generated through desktop reviews on the NBTE website. As pointed out by Dingemans (2017), desktop review is a secondary means of data generation in research. It is used to gather existing data that will help to answer questions in a study. NBTE was considered because it is the principal board established to supervise and monitor all TVET programmes that fall outside University Education in Nigeria (NBTE, n.d). As pointed out earlier, TVET institutions in the Nigerian context refer to any educational institute that delivers technical education-oriented programmes, such as, pre-vocational or general vocational education, vocational or (job specific) education), technical and professional education (Education Sector Analysis, 2005). These institutions cater for school-age range of 12-18 years (FME, 2000).

The analysis in this section is presented based on the total number of technical colleges cited on the NBTE website of each State within a geopolitical zone as approved by the NBTE. These colleges are categorised according to different levels of ownership namely, federal, state and private. Federal science and technical colleges are institutions owned and run by the federal arm of government. Government technical colleges are institutions owned and run by the state arm of the government. However, private technical colleges are institutions whose ownership falls outside the jurisdiction of Federal or State.

Table 5.1 below shows the provision of TVET across the different states in the six geopolitical zones.

Table 5. 1: The provision of TVET institutions in the six geopolitical zones and their states

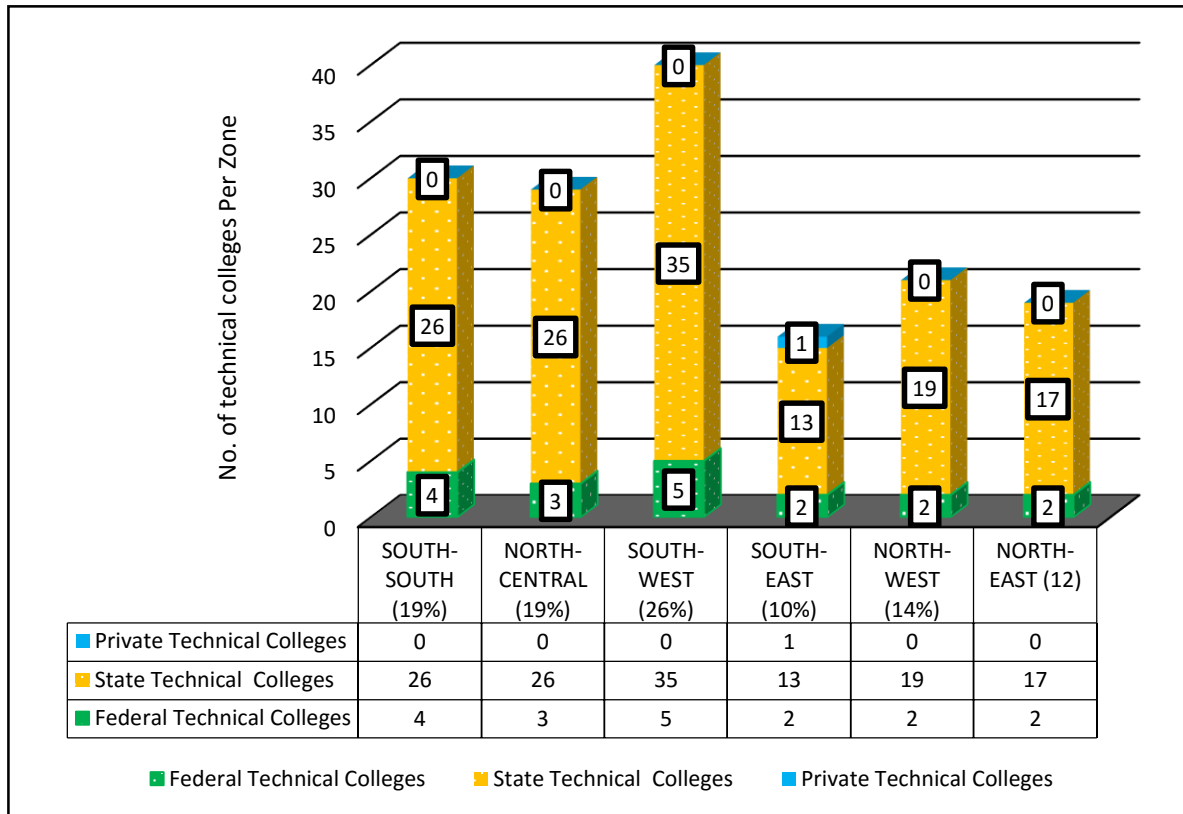
S/N	ZONES	STATES																		TOTAL	% TVET			
																				TVET COLLEGES PER ZONE	COLLEGS PER ZONE			
1	<b>SOUTH-SOUTH</b>	Akwa Ibom		Bayelsa			Cross River			Delta			Edo			Rivers				19				
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		30			
	<b>F/S/P</b>	1	5	-	1	1	-	-	4	-	-	6	-	1	6	-	1	4	-					
	<b># of TCs</b>	6			2			4			6			7			5							
2	<b>NORTH-CENTRAL</b>	Benue			Kogi			Kwara			Nassarawa			Niger			Plateau			Abuja		19		
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		29
	<b>F/S/P</b>	1	6	-	-	4	-	-	5	-	-	3	-	1	6	-	-	1	-	1	1	-		
	<b># of TCs</b>	7			4			5			3			7			1			2				
3	<b>SOUTH-WEST</b>	Ekiti			Lagos			Ogun			Ondo			Osun			Oyo				26			
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		40			
	<b>F/S/P</b>	1	4	-	1	5	-	1	7	-	1	5	-	1	9	-	-	5	-					
	<b># of TCs</b>	5			6			8			6			10			5							
4	<b>SOUTH-EAST</b>	Abia			Anambra			Ebonyi			Enugu			Imo				10						
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		16						
	<b>F/S/P</b>	1	3	-	1	1	-	-	2	1	-	3	-	-	4	-								
	<b># of TCs</b>	4			2			3			3			4										
5	<b>NORTH-WEST</b>	Jigawa			Kaduna			Kano			Katsina			Kebbi			Sokoto			Zamfara		14		
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		21
	<b>F/S/P</b>	-	1	-	1	4	-	-	5	-	-	4	-	1	2	-	-	3	-	-	-	-		
	<b># of TCs</b>	1			5			5			4			3			3							
6	<b>NORTH-EAST</b>	Adamawa			Bauchi			Bornu			Gombe			Taraba			Yobe				12			
	<b>Ownership</b>	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		19			
	<b>F/S/P</b>	1	3	-	-	2	-	1	2	-	-	2	-	1	6	-	-	1	-					
	<b># of TCs</b>	4			2			3			2			7			1							
<b>Total</b>																			<b>155</b>	<b>100</b>				

NOTE: The different levels of ownership in the table are denoted as follows: Federal (F); State (S); Private (P) List of approved Technical Colleges by States in the six geopolitical zones of Nigeria (NBTE, n.d)

It is significant to note how the information provided in the NBTE site has changed over a period of three years. In 2015, when this study began, the approved number of private technical colleges was three, existing in Anambra, Ebonyi and Ondo States. However, as at April 29, 2018, the only state whose private technical college was included among the 155 approved TCs was Ebonyi, meaning that at present there is only one private technical college being cited in the NBTE website. As illustrated in the table above, the number of technical colleges in the six geopolitical zones and their States is 155, and this number is constituted of one private, 135 state, and 19 federal TCs. Surprisingly, it is also noted that there is no technical college cited in Zamfara State, North-West.

Figure 5.1 below presents the number of TCs in each zone and their corresponding percentages. As illustrated in Fig 5.1, the highest number of TVET institutions is represented by the South-West zone, boasting a total of 40 technical colleges (26% of the national total). This is followed by the South-South zone with 30 (19%) TCs, and North-Central zone came third with 29 (19%) Technical colleges each. The North-West zone comes in fourth with 21(14%), and the North-East zone, at number five, with 19 (12%), whilst South-East has the least with 16 (10%) technical colleges.

With regard to the zones with the highest and lowest numbers of federal, state or private technical colleges, South-West is ranked the highest, with a total number of five federal and 35 state TCs, whilst correspondingly, South-East is the lowest with two and 13 respectively. However, the ownership of a private technical college is peculiar to the South-East zone with only one.



**Figure 5. 1: Chart Showing TVET provision across six geopolitical zones**

What the above results point to, is that there is no even distribution of TVET institutions across all six geopolitical zones. There seems to be a relative distribution of state owned technical colleges across all the zones, but this does not apply to federal and privately owned institutions. Furthermore, as we saw with Zamfara state, in the North-West Zone, there is no state technical college in site. This finding therefore highlights the deviation in the policy stipulation that there should be an establishment of at least one technical college in each State of the federation.

In the next section, I problematize TVET provision further by juxtaposing it against the provision of general education.

## 5.2 RESEARCH QUESTION TWO:

- *How does TVET provision within these six geopolitical zones compare to the provision of general education in schools?*

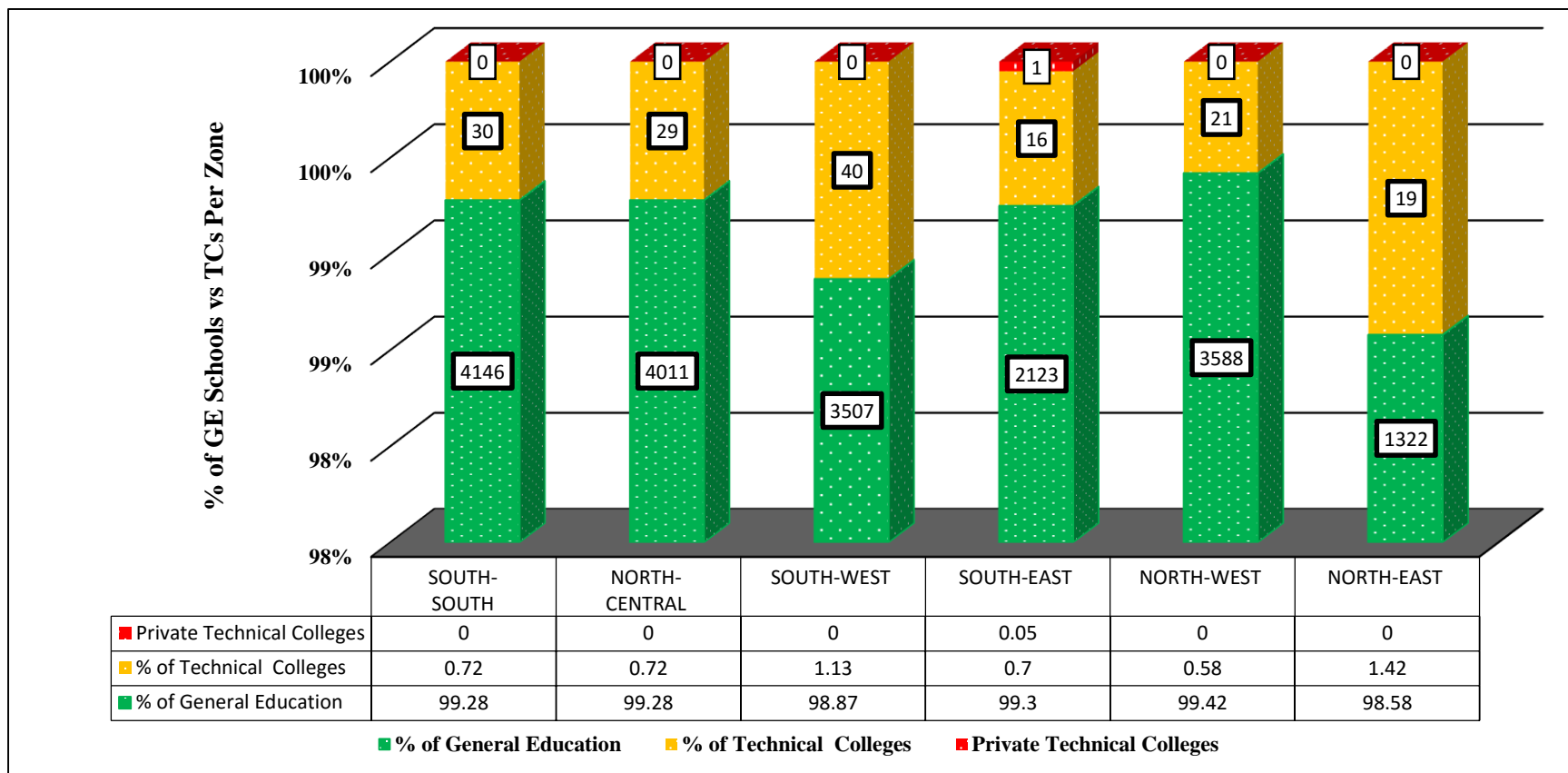
The data set for the second research question was generated through document analysis going through secondary sources that focused on secondary schools in Nigeria. These were

specifically from NBTE (n.d) and from a statistical report on transforming secondary education in Nigeria by Ford Foundation (Eze, Nwaura & Ngenda, 2014). The essence of this section is to compare TVET provision to that of general education schools in the six geopolitical zones.

Figure 5.2<sup>3</sup> below compares the distribution of general education vis-a-vis TVET institutions across the six geopolitical zones of Nigeria. As illustrated in the table below, the number of technical colleges for the following zones namely South-South, North-Central, South-West, South-East, North-West and North-East is: 30, 29, 40, 16, 21 and 19 respectively, whilst that of general education secondary schools is 4146, 4011, 3507, 2123, 3588 and 1322 respectively. This highlights a range value from 1:138 to 1:70. This wide margin variation seen across the six zones between technical colleges and general education Secondary Schools confirms the assertion that little emphasis is accorded to TVET provision in Nigeria (Akanbi, 2017).

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<sup>3</sup> See corresponding table in appendix N



**Figure 5. 2: Chart showing general education schools visa-a-vis TVET provision across six geopolitical zones**

Table 5. 2. Showing the percentage ratios of GES and TCs across six geopolitical zones

S/N	Zone	GES	TVET (TCs)	Ratio	% Ratio
1	South-South	4146	30	<b>138:1</b>	99.2:0.72
2	North-Central	4011	29	<b>138:1</b>	99.28:0.57
3	South-West	3507	40	<b>87:1</b>	98.87:1.13
4	South-East	2123	16	<b>133:1</b>	99.30:0.70
5	North-West	3588	21	<b>171:1</b>	99.42:0.58
6	North-East	1322	19	<b>70:1</b>	98.58:1.42

Statistical Report on Transforming Secondary Education in Nigeria and List of approved Technical Colleges in Nigeria (Eze, Nwaura & Ngenda, 2014; NBTE, n.d)

With such powerful statistics, we can thus conclude that much preference is given to general education to the detriment of TVET. In a country of about 170 million people, which considers TVET as a tool for economic and industrial development, having this few number of technical colleges compared to general education schools is not sufficient to provide the required workforce let alone sustainable gainful employment.

In the next section, I interrogate the level of efficiency of a selected few TVET institutions across only four of the six geopolitical zones in Nigeria. Here, the analysis is aimed at determining the overall indices of efficiencies in TVET provision of those selected institutions.

### 5.3 RESEARCH QUESTION THREE:

- *What is the level of efficiency of a selected few TVET institutions across these geopolitical zones in Nigeria?*

The data set for the third research question was generated using a questionnaire which explored the internal efficiency of TVET provision. The questionnaire consists of seven facets of interests and 47 indicators as illustrated in Chapter 4.

For this third phase of the Preliminary Study, data was collected in the following four out of the six geopolitical zones, namely: South-South, North-Central, South-West and South-East (see appendices I-M) for tabulations and calculations. As explained in Chapter 4, these four zones were selected due to security concerns in the northern part of the country. Table 5.3 below shows that there are 115 technical colleges currently providing TVET in these four



zones. An attempt was made to administer the questionnaires in at least one technical college from each State across the four geopolitical zones surveyed. However, as can be seen in Table 5.3 above, no retrieval of questionnaires was made for Kogi, Ekiti, Abia and Enugu States. However, only 22 (19%) out of the 115 technical colleges were conveniently sampled, as illustrated in Table and Figure 5.3 below.

Furthermore, the data shows that there was more participation from state technical colleges compared to federal where only four took part, and private where none participated.

Table 5. 3: Number of technical colleges sampled from each state

S/N	ZONES	STATES																					TOTAL TVET INSTITUTIONS PER ZONE	
		Akwa Ibom			Bayelsa			Cross River			Delta			Edo			Rivers							
1	Ownership	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	30	
	F/S/P	1	5	-	1	1	-	-	4	-	-	6	-	1	6	-	1	4	-					
	# of TCs	6			2			4			6			7			5							
	# of TCs Sampled	1 (S)			1 (F)			1 (S)			1 (S)			1 (S)			1 (S)			5 (S) + 1 (F) = 6				
2	Ownership	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		F	S	P	29
	F/S/P	1	6	-	-	4	-	-	5	-	-	3	-	1	6	-	-	1	-		1	1	-	
	# of TCs	7			4			5			3			7			1				2			
	# of TCs Sampled	1 (S)			0			1 (S)			1 (S)			1 (S)			1 (S)			1 (S) + 1 (F)			6 (S) + 1 (F) = 7	
3	Ownership	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		40
	F/S/P	1	4	-	1	5	-	1	7	-	1	5	-	1	9	-	-	5	-					
	# of TCs	5			6			8			6			10			5							
	# of TCs Sampled	0			1 (F)			1 (S)			1 (S)			1 (S)			1 (S)			4 (S) + 1 (F) = 5				
4	Ownership	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P	F	S	P		F	S	P	16
	F/S/P	1	3	-	1	1	-	-	2	1	-	3	-	-	4	-								
	# of TCs	4			2			3			3			4										
	# of TCs Sampled	0			1 (S) + 1 (F)			1 (S)			0			1 (S)			3 (S) + 1 (F) = 4							
Total Number of technical colleges Across Four Zones																					115			
Total Number of technical colleges Sampled Across Four Zones																					22			

NOTE: The different levels of ownership in the table are denoted as follows: Federal (F); State (S); Private (P)

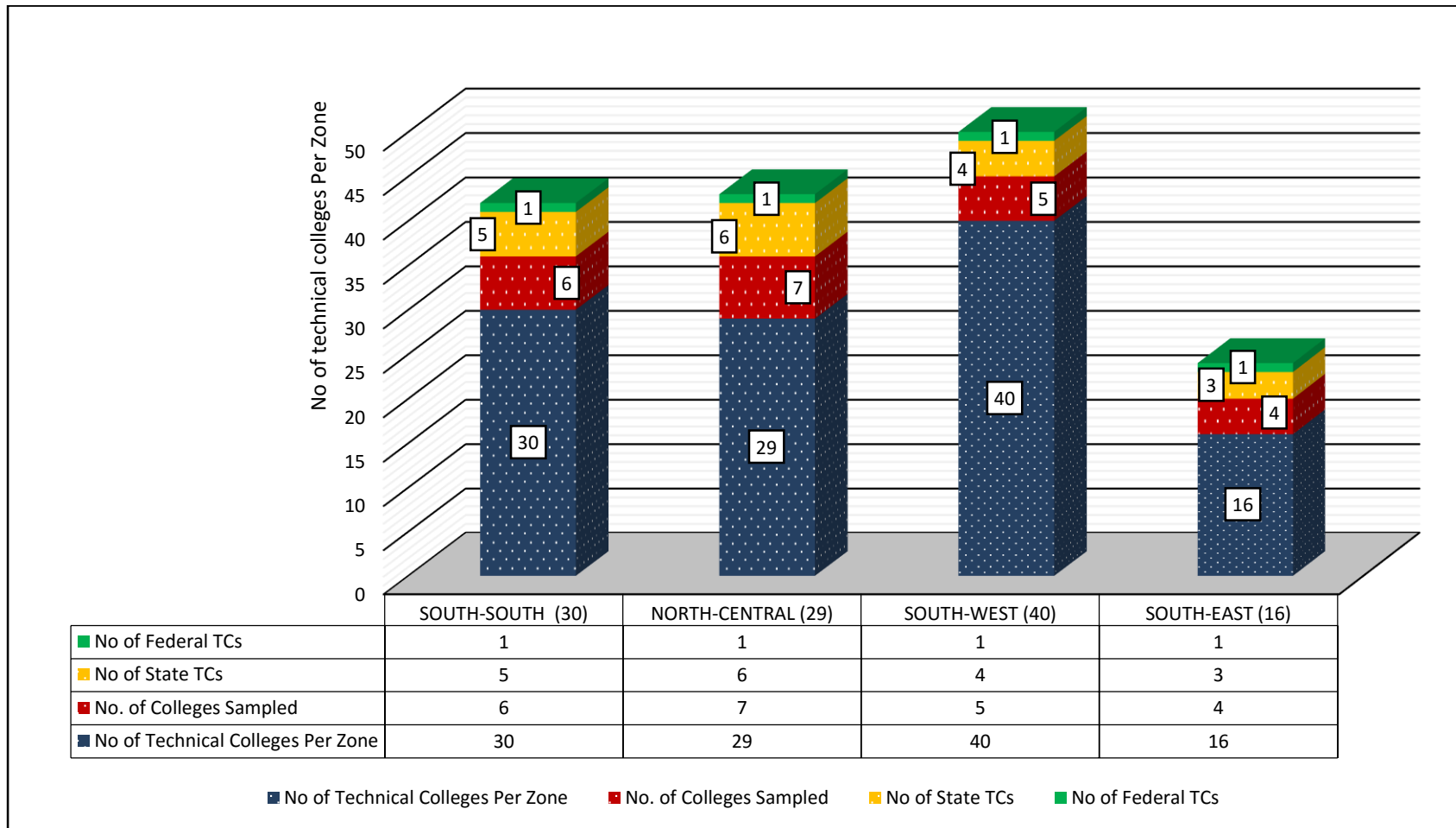


Figure 5. 3: Chart showing percentage number of technical colleges that participated in each of the four geopolitical zones

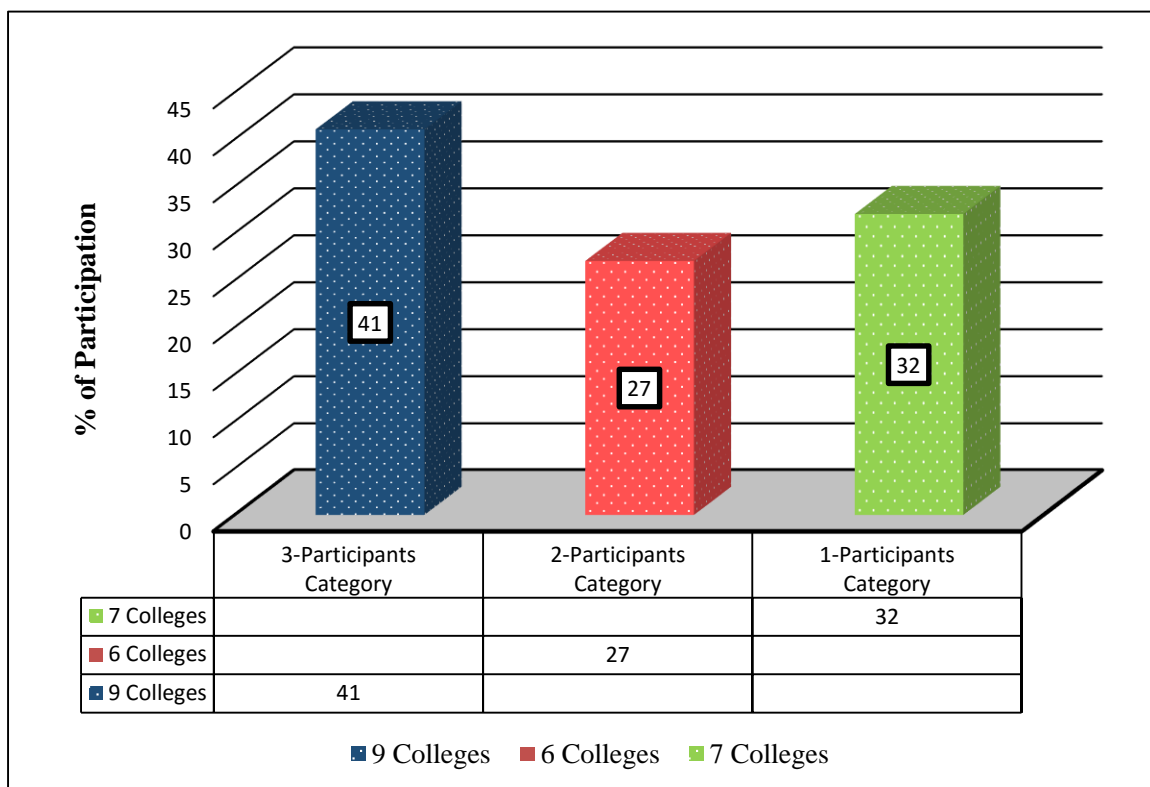
Table 5.4 below, further illustrates the level of respondents' participation from each federal and state technical college selected from the four geopolitical zones surveyed.

Table 5. 4: Level of participation of federal and state colleges across the selected institutions in the four zones

ZONE	NO. OF COLLEGE PARTICIPATING ACROSS FOUR ZONES (22)	PERCENTAGE (%)		
		CATEGORY OF PARTICIPATION ACROSS FOUR ZONES		
		OPC	TPC	THPC
South-South	6	1	-	5
North-Central	7	2	3	2
South-West	5	2	1	2
South-East	4	2	2	-
Total	22	7	6	9
	<b>% Total</b>	<b>31.82</b>	<b>27.27</b>	<b>40.90</b>

Note: The different categories of participants are denoted as follows: One Participant Category (**OPC**); Two Participant Category (**TPC**); Three Participant Category (**THPC**)

These participating colleges were made up of federal and state technical colleges, viz., four federal technical colleges, one from each of the four zones, and eighteen state technical colleges spread across the four zones. Figure 5.4 below, further illustrates the level and percentage category of participation from each technical college surveyed.



**Figure 5. 4: Chart showing category of participation across four geopolitical zones**

As can be seen in Table 5.4 and Figure 5.4 above, nine (40.90%) out of all 22 colleges had a 100% participation rate. This means, all three categories of respondents participated, namely, the principal, the HOD and the TC teacher. The 40.90% was constituted of five (22.71%) TCs from South-South and two (9.10%) each from North-Central and South-West respectively. However, in three zones, six (27.25%) out of all 22 colleges have only two categories of participants. This is comprised of three (13.60%) TCs from North-Central, whilst South-West and South-East both have one (4.55%) and two (9.10%) respectively. For one category of participant, a total of seven (31.85%) colleges are recorded across the four zones, namely one (4.55%) from South-South, whilst North-Central, South-West and South-East have two (9.10%) each in their respective zones. It is also worth noting that the highest level of participation of 41% is recorded with the three participant category, and as such, it is evident that their contribution yielded more data compared to other levels.

In the section above, I presented the analysis of TVET provision across the six geopolitical zones of Nigeria. In the section below, we focus on the overall index of efficiency of TVET provision across the four geopolitical zones surveyed as seen in Table 5.5 below.

Table 5. 5: List of TVET institutions surveyed and their overall index of efficiency (%)

ZONE	S/N	State	Name of TVET institution	Overall Index of Efficiency (3)	Overall Index of Efficiency (average of all 3)
<b>South-South (SS)</b>	1	Akwa Ibom	UTC, Ikpa, Eket (S)	47	<b>40</b>
	2	Bayelsa	<b>FSTC, Tungbo* (F)</b>	51	
	3	Cross River	GTC, Mayne Avenue, Calabar (S)	52 (H)	
	4	Delta	ITC, Isele-Ukwu (S)	27	
	5	Edo	GSTC, Irrua (S)	37	
	6	Rivers	GTC Port-Harcourt (S)	23 (L)	
<b>North-Central (NC)</b>	1	Benue	BSUSTC, Markurdi (S)	71	<b>56</b>
	2	Kwara	GTC, Erin-Ile (S)	46	
	3	Nassarawa	GTC, Assakio (S)	59	
	4	Niger	GSTC, Minna (S)	18 (L)	
	5	Plateau	GSTC, Bukuru (S)	81 (H)	
	6	Abuja	GSTC, Garki (S)	56	
<b>South-West (SW)</b>	7	<b>Abuja</b>	<b>FSTC, Orozo* (F)</b>	59	<b>54</b>
	1	Ogun	GSTC, Ogun (S)	57	
	2	Ondo	GTC, Owo (S)	70 (H)	
	3	Osun	GTC, Oshogbo (S)	56	
	4	Oyo	GTC, Ibadan (S)	26 (L)	
<b>South-East (SE)</b>	5	Lagos	<b>FSTC, Yaba* (F)</b>	61	<b>37</b>
	1	Anambra	GTC, Onitsha (S)	31	
	2	Ebonyi	GTC, Abakiliki (S)	19 (L)	
	3	Imo	GTC, Owerri (S)	35	
<b>TOTAL</b>	<b>22</b>				<b>187</b>

NB. Federal-owned colleges are marked asterisks (\*), denoted 'F' in bold fonts, whilst state-owned colleges are denoted 'S'. The different colours show the level of participation. Red for one, Lemon for two, and Yellow for three categories of persons who participated in each college sampled.

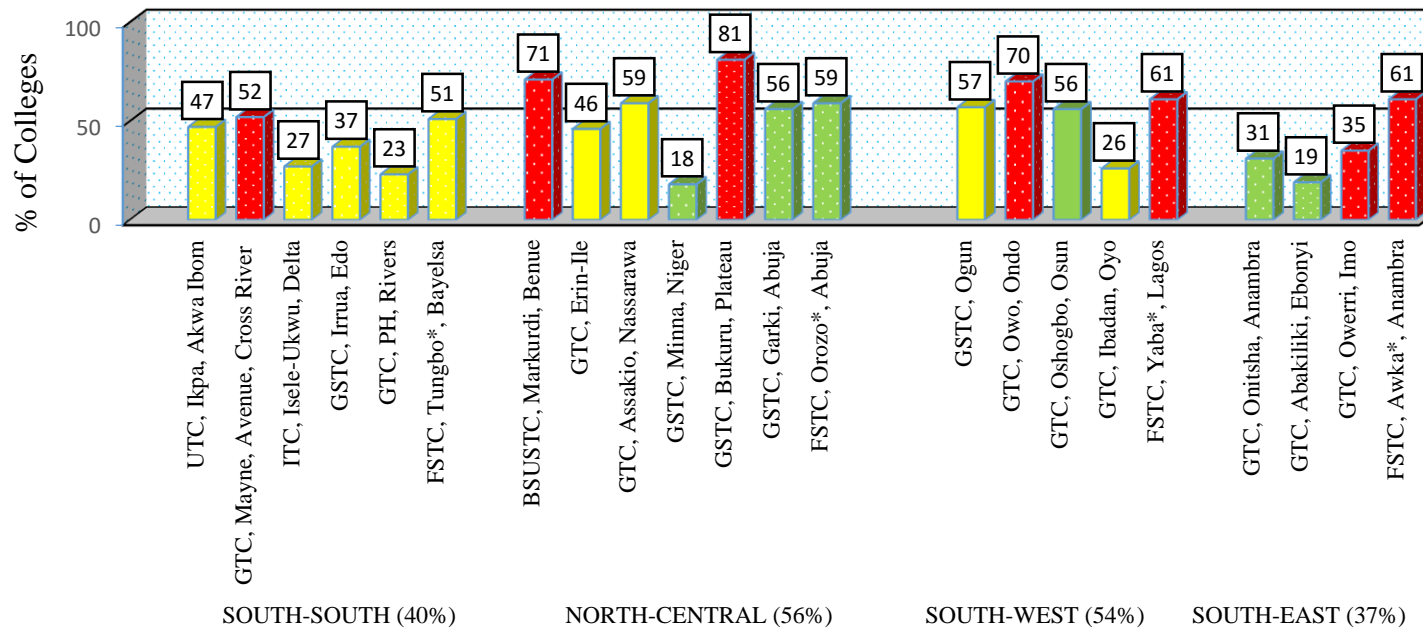


Figure 5. 5: Chart showing average overall index of efficiency of TVET provision by zones

The analysis in Table and Figure 5.5 above shows the overall index of efficiency of TVET provision across the four geopolitical zones surveyed. There are three different colour codes as seen on the table, each indicating the different rate of participation of respondents in each of the technical colleges. All codes in yellow represents colleges where all three participants responded, whilst green and red represent two and one respectively, as represented in the table and chart above.

From the analysis in Table 5.6 above, it is indicated that out of the 22 colleges surveyed, about 12 have their overall index of efficiency (OIE) above 50% across the four geopolitical zones. In some of these colleges, only one participant responded, whilst others are two and three respectively. For colleges where there is only one category of participant, six out of seven have their overall index of efficiency (OIE) above 50% across all four zones surveyed. These include the following: South-South, GTC, Calabar (S) have 52%; in North-Central, GSTC, Bukuru (S) Jos recorded 81%; whilst for South-West and South-East, GTC, Owo and FSTC, Awka have their OIE as 70% and 61% respectively. In colleges with two categories of participants, amongst the six colleges across three geopolitical zones namely North-Central, South-West and South-East, two from North-Central have their OIE above 50%, that is GSTC, Garki (S)-56% and FSTC, Orozo (F)-59%, whilst one is from South-West-GTC, Oshogbo with 56%. Conclusively, for colleges with 100% participation, that is where all three participants responded, for the nine colleges recorded across South-South, North-Central, and South-West, only three have their OIE above 50%. These include for South-South, FSTC, Tungbo (F) in Bayelsa with 51%; GTC, Assakio (S), Nassarawa in North-Central recorded 59%, whilst for South-West, GTC, Ogun (S) is 56%. Significantly, these findings point to the quality of training in each of the technical colleges surveyed. The implication of these findings is that the efficiency of TVET provision in these colleges have been compromised. With such OIEs as these, it will definitely be difficult to meet the stated policy objectives for technical college programmes. The findings also highlight the level of input in these colleges in terms of resources. Since quality of input influences quality of output (ADB, 2008), these results conclude that the quality of input in these colleges is low, and these have also affected the level of output recorded.

As can be seen in the results in Table 5.5 above, in each of the zones, there are colleges with the highest and lowest OIEs. For South-South, the college with the highest OIE is GTC, Calabar (S)-Cross River, whilst the lowest is GTC, Port Harcourt (S) in Rivers. In North-Central, GSTC, Bukuru (S) in Jos Plateau recorded the highest OIE of 81%, whereas GSTC,

Minna (S), Niger, has the lowest of 18%. In South-West, GTC, Owo (S) in Ondo has the highest of 70%, whilst GTC, Ibadan (S)-Oyo is the lowest of 26%. Conclusively, for South-West, FSTC, Awka (F) is tied to the highest OIE of 61%, whilst GTC, Abakiliki (S) in Ebonyi has the least of 19%. From the foregoing, it can be seen that three out of the four zones have colleges with the highest and lowest OIEs as state owned colleges, whilst one has a Federal owned college with the highest OIE and the lowest as a State. These three zones respectively include South-South, North-Central and South-West, whilst the only one zone is South-East

The summary of findings from the analysis in Table 5.5 above indicates that North-Central recorded the highest average overall index of efficiency of 56%, closely followed by South-West with 54%, whereas South-South and South-East recorded 40% and 37% respectively. The implication is that the efficiency of TVET provision in the aforementioned zones follows the same sequence.

In the next section, I present the comparison of the efficiency values of facets of interest of TVET institutions for the South-South geopolitical zone

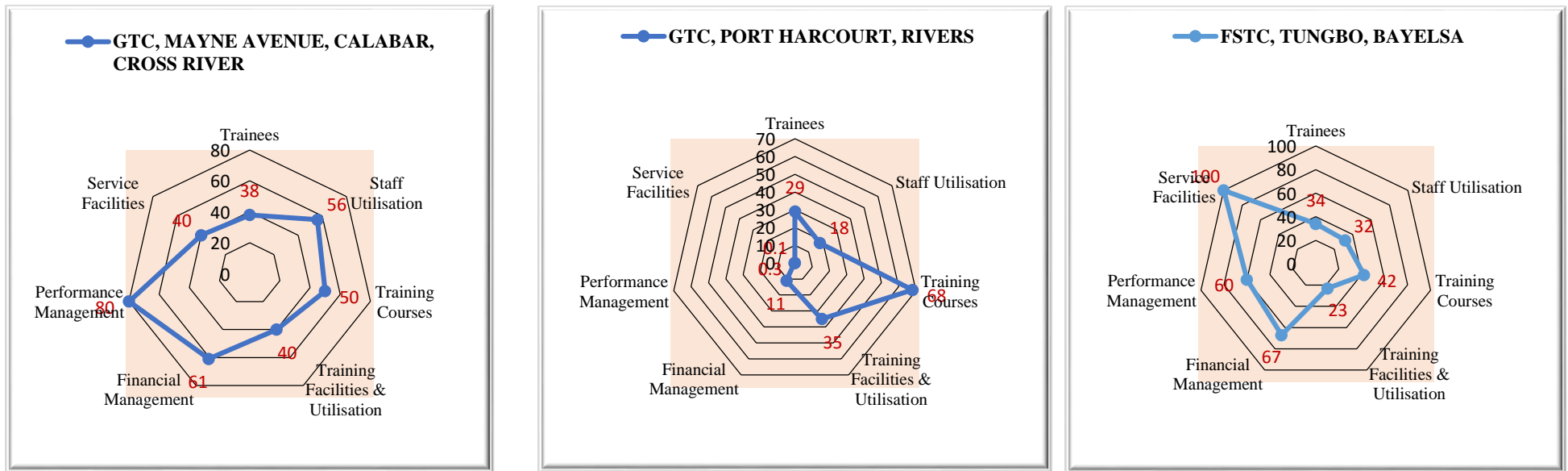
Table 5. 6: Comparison of the efficiency values of facets of interest of TVET institutions for South-South geopolitical zone

S/NO	FACETS OF INTERESTS	CROSS	RIVERS	BAYELSA
		RIVER (S)	(S)	(F)
1	Trainees	38	29	34
2	Staff Utilisation	56	18	32
3	Training Courses	50	68	42
4	Training Facilities & Utilisation	40	35	23
5	Financial Performance	61	11	67
6	Performance Management	80	0.3	60
7	Service Facilities	40	0.1	100
	<b>Overall Index of Efficiency</b>	<b>52(H)</b>	<b>23 (L)</b>	<b>51*</b>

Note federal-owned colleges in the table are denoted as “F” and state-owned as “S”

The radar diagram for the tabulation above is presented in Figure 5.6 below.





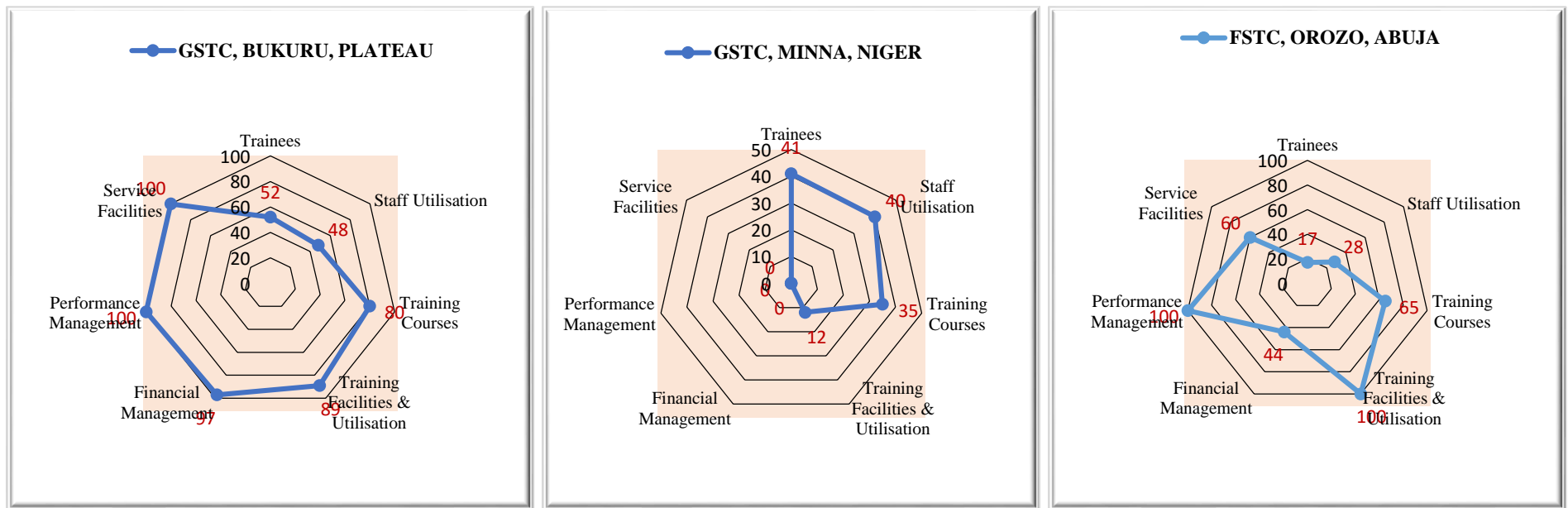
**Figure 5. 6: Radar Diagrams of TVET Institutions with highest (left diagram) and lowest (middle diagram) Overall index of efficiency for South-South geopolitical zone**

Among the technical colleges surveyed in the South-South zone, GTC, Mayne Avenue in Calabar Cross River State has the highest OIE amounting to 52%, closely followed by Bayelsa at 51%, whilst GTC, Port Harcourt in Rivers State has the lowest of 23%. Table 5.6 above compares the efficiency values of facets of interests of the above three institutions, while figure 5.5 compares the Radar Diagrams of these institutions. From the table above, the extent of variation of the efficiency values for performance management and service facilities are as high as 80% and 40%, whilst the corresponding values for GTC, Port Harcourt are 0.3% and 0.1% respectively. It is significant to note that Bayelsa recorded 60% and 100%, respectively, for these two facets of interests. According to IDEAS (2008), the desired characteristics of an efficient TVET institution ranges from 96% to 100%., but findings from the analysis above highlights a lower OIE values for the institutions surveyed in South-South which are 52% and 23% respectively. The implication is that these institutions with such low OIEs are not efficient. However, the greater internal efficiency within facets of interest is recorded in service facilities with FSTC, Tungbo in Bayelsa which is 100%. This means all performance indicators are adequate and properly utilised (IDEAS, 2008). On the other hand, that of GTC, PH is grossly inadequate, whilst for GTC, Calabar, service facilities are inadequate according to the desired characteristics of an efficient TVET institution (IDEAS, 2008). This implies that an improvement on the efficiency indicators for performance management and service facilities in institutions with deficiencies would lead to greater satisfaction of staff and trainees in the institutions. In the next section, I present the comparison of the efficiency values of facets of interest of TVET institutions for North-Central geopolitical zone.

Table 5. 7: Comparison of the efficiency values of facets of interest of TVET institutions for North-Central geopolitical zone

S/NO	FACETS OF INTERESTS	PLATEAU	NIGER	ABUJA
		(S)	(S)	(F)
1	Trainees	52	41	17
2	Staff Utilisation	48	40	28
3	Training Courses	80	35	65
4	Training Facilities & Utilisation	89	12	100
5	Financial Performance	97	0	44
6	Performance Management	100	0	100
7	Service Facilities	100	0	60
	<b>Overall Index of Efficiency</b>	<b>81 (H)</b>	<b>18 (L)</b>	<b>59*</b>

The radar diagrams for the three institutions compared in Table 5.7 above are presented in Figure 5.7 below.



**Figure 5. 7: Radar Diagrams of TVET Institutions with highest (left diagram) and lowest (middle diagram) Overall index of efficiency for North-Central geopolitical zone**

As can be seen in Table 5.7 above, colleges in North-Central, GSTC, Bukuru in Jos Plateau State has the highest overall index of efficiency amounting to 81%, followed by FSTC, Abuja with 59%, whereas GSTC, Minna, Niger State has the lowest of 18%. Table 5.8 compares the efficiency values of facets of interests of the above institutions while Figure 5.6 compares the radar diagrams of these institutions. The extent of variation of the efficiency values of facets of interests, as can be seen in the table for financial performance, performance management, and service facilities for GSTC, Bukuru are as high as 97% and 100% for both performance management and service facilities respectively, whilst the corresponding values for GSTC, Minna, are 0% for the three listed facets of interests. Significantly, FSTC, Abuja in turn recorded 44%, 100% and 60% for these three facets of interests. Results from the analysis above shows that both institutions with the highest (81%) and lowest (18%) OIEs when compared to the desired characteristics (96%-100%) of an efficient TVET institution are not efficient (IDEAS, 2008).

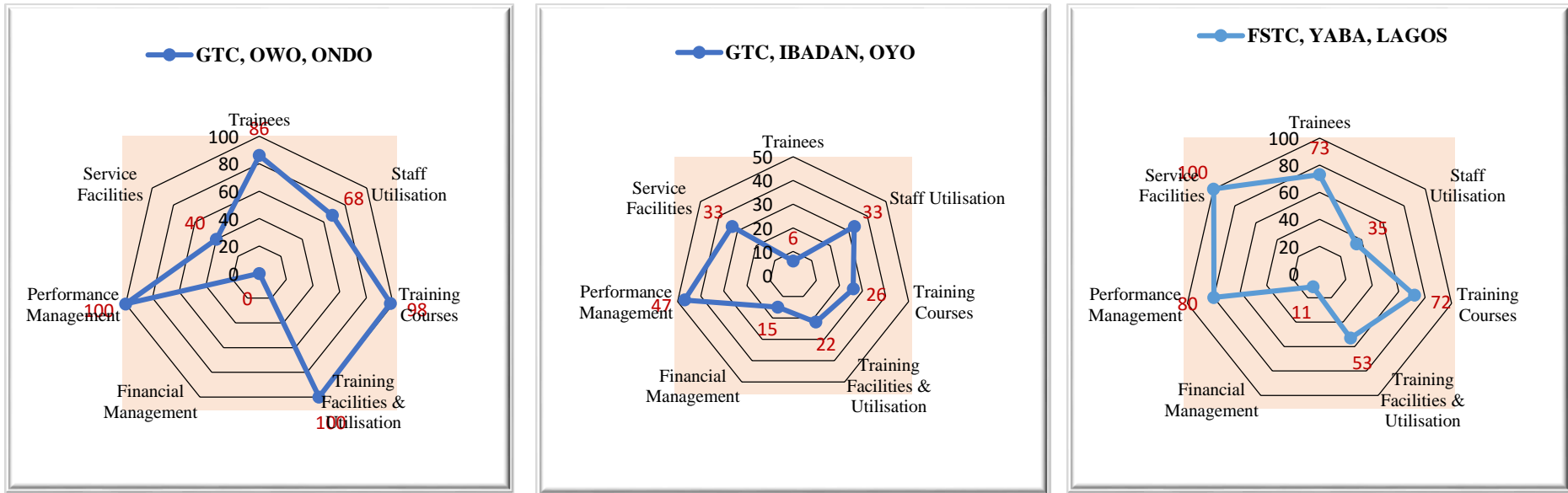
However, the results also highlighted that a high level of efficiency is obtained for financial performance, performance management and service facilities for GSTC, JOS. This finding is in agreement with IDEAS (2008) as the efficiency to be possessed by individual facets of interests. The implication of these findings is that there is adequate budgetary provision and utilisation, availability and full implementation of course, staff, strategic and service marketing plans. Also, there is a regular performance review with staff. Furthermore, services facilities such as fire and electrical safety, health, hygienic and library facilities together with housekeeping is fully adequate. Conversely, institutions with lower efficacies in the aforementioned facets of interests points to a deficit on the availability and utilisation of such resources.

In the next section, I present the comparison of efficiency values of facets of interest of TVET institutions for South-West geopolitical zone.

Table 5. 8: Comparison of the efficiency values of facets of interest of TVET institutions for South-West geopolitical zone

S/NO	FACETS OF INTERESTS	ONDO (S)	OYO (S)	LAGOS (F)
1	Trainees	86	06	73
2	Staff Utilisation	68	33	35
3	Training Courses	98	26	72
4	Training Facilities & Utilisation	100	22	53
5	Financial Performance	0	15	11
6	Performance Management	100	47	80
7	Service Facilities	40	33	100
	<b>Overall Index of Efficiency</b>	<b>70 (H)</b>	<b>26 (L)</b>	<b>61*</b>

The radar diagrams for the three institutions compared in table 5.8 above is presented in Figure 5.8 below.



**Figure 5. 8: Radar diagrams of TVET Institutions with highest (left diagram) and lowest (middle diagram) Overall index of efficiency for South-West geopolitical zone**

From the analysis in Table 5.8 above, for colleges in South-West, GTC, Owo, Ondo has the highest overall index of efficiency amounting to 70%, next to it is FSTC, Yaba with 61%, whilst GTC, Ibadan, Oyo State has the lowest of 26%. Table 5.9 compares the efficiency values of facets of interests of the above institutions while figure 5.8 compares the radar diagrams of these institutions. The extent of variation of the efficiency values of facets of interests, as can be seen in the table, for trainees, training facilities and utilisation, and performance management for GTC, Owo in Ondo are as high as 86% and 100% respectively, whilst the corresponding values for GTC, Ibadan, are 6%, 22% and 47%. For these three facets of interests outlined, it is worthy of note that FSTC, Yaba recorded 73%, 53% and 80% respectively. According to IDEAS (2008, pp. 28-29), the desired characteristics of an efficient TVET providing institution is such that its OIE should be at least 96%-100% as deduced.

However, the findings from the analysis of data generated from these Colleges in SW reveals lower OIE values of 70% and 61% for GTC, Owo and FSTC, Yaba respectively. For institutions with greater efficiency values such as obtained in performance management and service facilities facets of interest, it is evident that there are positive responses to the performance indicators within each domain of interest, whilst the reverse applies to negative responses. The implication is that course, staff, strategic and service marketing plans are readily available and implemented in addition to regular performance review with staff. Besides, services facilities such as fire and electrical safety, health, hygienic and library facilities, together with housekeeping, are fully adequate. Conversely, institutions with lower efficacies in the aforementioned facets of interests points to a deficit on the availability and utilisation of such resources.

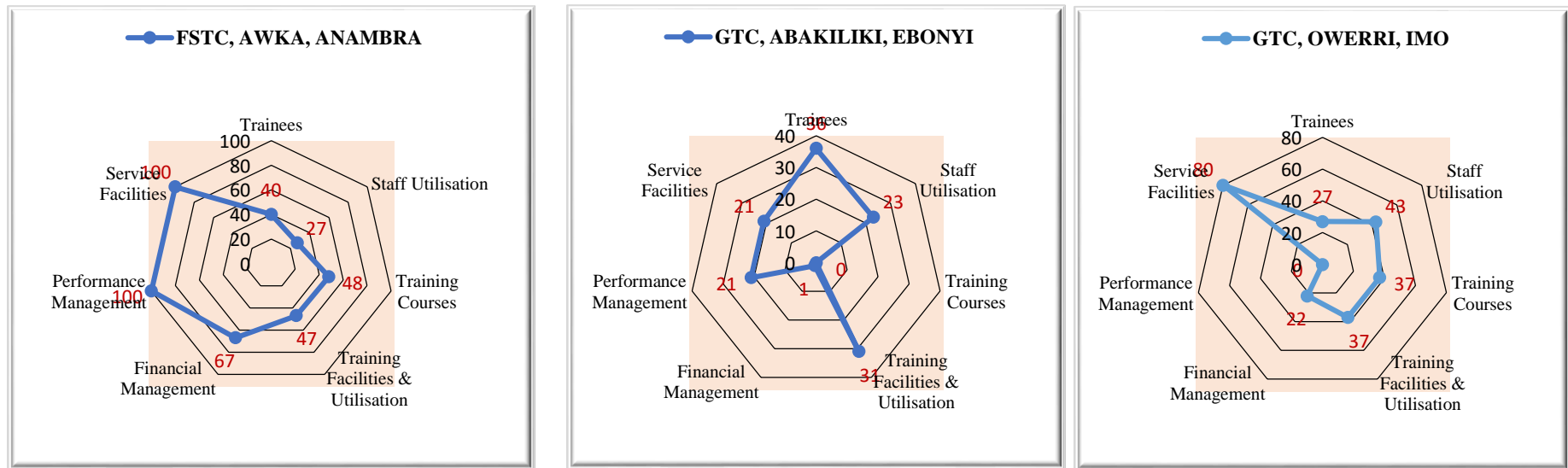
The comparison of the efficiency values of facets of interest of TVET institutions for South-East geopolitical zone is presented in the following section.



Table 5. 9: Comparison of the efficiency values of facets of interest of TVET institutions for South-East geopolitical zone

S/NO	FACETS OF INTERESTS	IMO	EBONYI	ANAMBRA
		(S)	(S)	(F)
1	Trainees	27	36	40
2	Staff Utilisation	43	23	27
3	Training Courses	37	0	48
4	Training Facilities & Utilisation	37	31	47
5	Financial Performance	22	01	67
6	Performance Management	0	21	100
7	Service Facilities	80	21	100
<b>Overall Index of Efficiency</b>		<b>35(H)</b>	<b>19 (L)</b>	<b>61*</b>

Figure 5.9 below further illustrates the three institutions compared in table 5.9 above.



**Figure 5. 9: Radar diagrams of TVET Institutions with highest (left diagram) and lowest (middle diagram) Overall index of efficiency for South-East geopolitical zone**

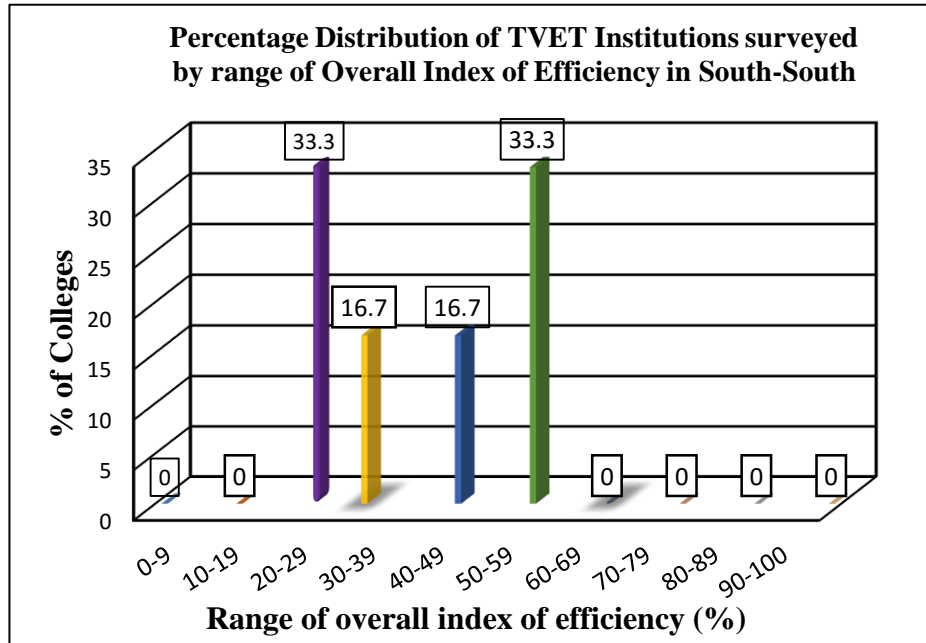
Findings from the analysis in Table 5.9 above for colleges in South-East shows that FSTC, Awka, Anambra has the highest overall index of efficiency amounting to 61%, followed by GTC, Owerri, Imo with 35%, whilst GTC, Abakiliki, Ebonyi, has the lowest of 19%. Table 5.9 compares the efficiency values of facets of interests of the above institutions while figure 5.10 compares the radar diagrams of these institutions. The extent of variation can be seen in the table above for the efficiency values of facets of interests for training courses, financial performance, performance management and service facilities – the figures are 37%, 22%, 0% and 80% respectively. For GTC, Abakiliki, the corresponding values are 0%, 1%, and 21% for the last two facets. It is worth noting that for these four facets of interests listed, FSTC Awka recorded 48%, 67% and 100% respectively for the last two facets of interests. From the findings, it can be seen that the OIEs for the three institutions in this zone is below 50%, and this does not conform with the desired characteristics of an efficient TVET institution as provided by IDEAS (2008), which is calculated at 96%-100%. Institutions with greater efficiency values in some facets of interest, such as performance management and service facilities, reveal that the performance indicators which are inputs were properly utilised, whilst those with lower values signal lack of inputs and poor utilisation of resources as defined by IDEAS (2008, p. 2).

In the next section, I present the percentage distribution of TVET institutions surveyed by different ranges of overall index of efficiency for South-South States.

Table 5. 10: Percentage distribution of TVET Institutions surveyed by range of overall index of efficiency South-South

Colleges/States	Overall Index of Efficiency (%)										Total
	0-9	10-19	20 - 29	30-39	40-49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100	
UTC, Ikpa, <b>Aka Ibom</b>	-	-	-	-	1	-	-	-	-	-	1
GTC, Mayne Avenue, Calabar, <b>Cross river</b>	-	-	-	-	-	1	-	-	-	-	1
FSTC, Tungbo*, <b>Bayelsa</b>	-	-	-	-	-	1	-	-	-	-	1
ITC, Isele-Ukwu, <b>Delta</b>	-	-	1	-	-	-	-	-	-	-	1
GSTC, Irrua, <b>Edo</b>	-	-	-	1	-	-	-	-	-	-	1
GTC, PH, <b>Rivers</b>	-	-	1	-	-	-	-	-	-	-	1
Total	-	-	2	1	1	2	-	-	-	-	1
<b>South-South</b>	<b>0</b>	<b>0</b>	<b>33.3</b>	<b>16.7</b>	<b>16.7</b>	<b>33.3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>

The bar chart for the representation in table in table 5.10 above is presented below.



**Figure 5. 10: Chart showing percentage distribution of TVET institutions surveyed by range of overall index of efficiency in South-South**

- As can be seen in South-South, the overall index of efficiency of the colleges surveyed ranges from 23% to 52%; the difference amounts to 29% points (Table 5.5)
- Only two (33.3%) of the colleges are having their overall index of efficiency in the range of 50-59 (Table 5.10).
- The average overall index of efficiency among the five State technical college surveyed is highest (52%) in GTC, Calabar, and lowest in GTC, Port Harcourt for South-South.
- When federal and state colleges are compared, the average overall index of efficiency of the state is higher at GTC Calabar (52%), whilst that of federal is lower at FSTC, Tungbo with (51%), difference in amount of 1%.

In the next section, I present the percentage distribution of TVET institutions surveyed by different ranges of overall index of efficiency for North-Central States.

Table 5. 11: Distribution of TVET Institutions surveyed by range of Overall Index of Efficiency in North-Central States

Colleges/Stater	Overall Index of Efficiency (%)										Total
	0-9	10-19	20 - 29	30-39	40-49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100	
BSUSTC, Markurdi,	-	-	-	-	-	-	-	1	-	-	1
<b>Benue</b>											
GTC, Erin-Ile Kwara	-	-	-	-	1	-	-	-	-	-	1
GTC, Assakio Nassarawa	-	-	-	-	-	1	-	-	-	-	1
GSTC, Minna	-	1	-	-	-	-	-	-	-	-	1
GSTC, Bukuru	-	-	-	-	-	-	-	-	1	-	1
GSTC, Garki	-	-	-	-	-	1	-	-	-	-	1
FSTC, Orozo*	-	-	-	-	-	1	-	-	-	-	1
Total	-	1	-	-	1	3	-	1	1	-	7
<b>North-Central</b>	<b>0</b>	<b>14.3</b>	<b>0</b>	<b>0</b>	<b>14.3</b>	<b>42.9</b>	<b>0</b>	<b>14.3</b>	<b>14.3</b>	<b>0</b>	<b>100%</b>

The bar chart for the representation in table 5.12 above is presented below.

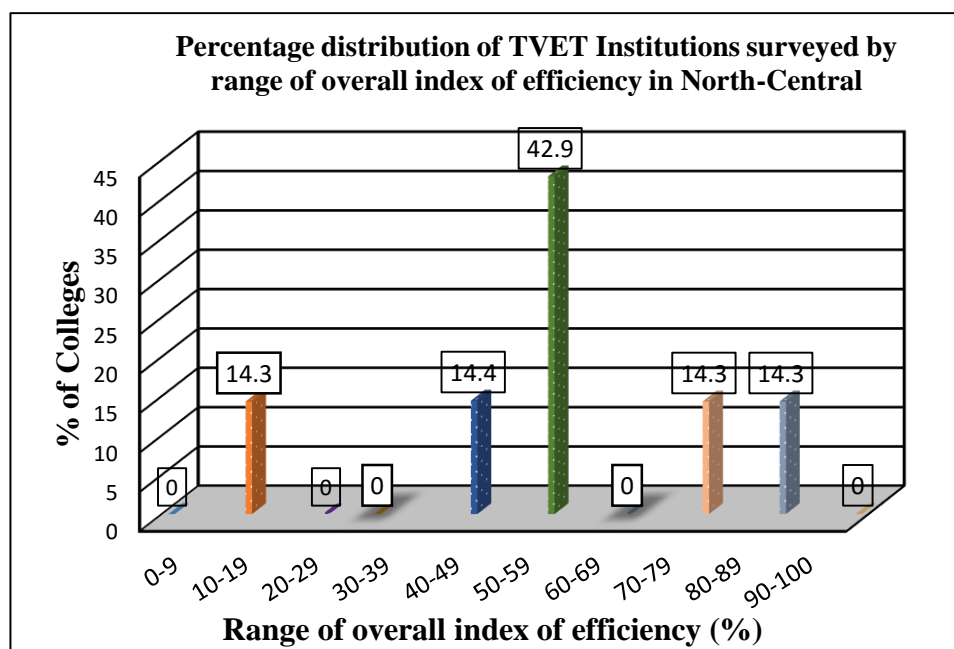


Figure 5. 11: Chart showing percentage distribution of TVET institutions surveyed by range of overall index of efficiency in North-Central

- From the analysis in North-Central, it is found that the overall index of efficiency of the colleges surveyed ranges from 18% to 81%; the difference amounts to 63% points (Table 5.5).

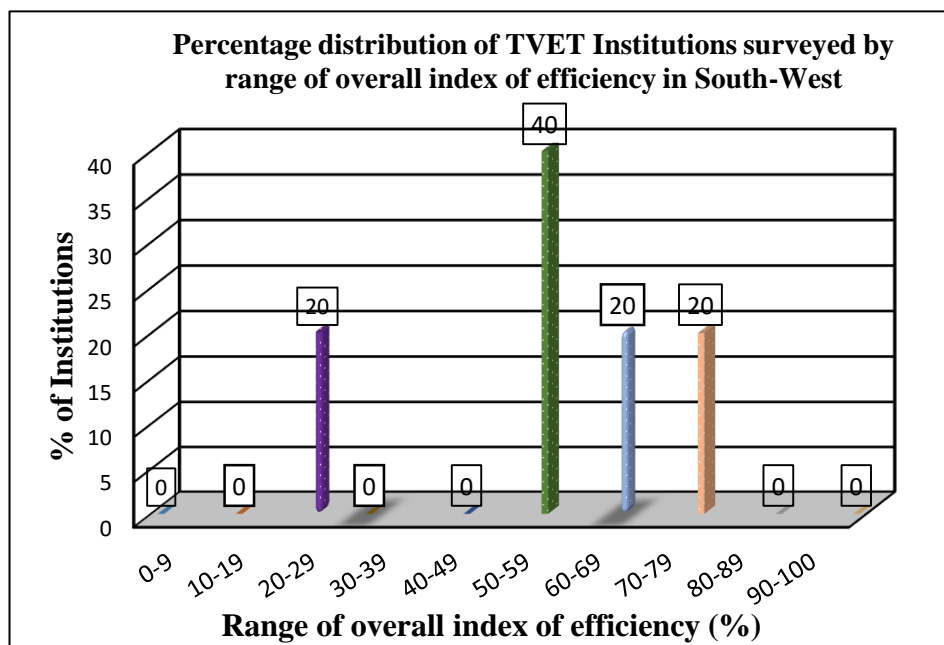
- Only one (14.3%) of the colleges has its overall index of efficiency in the range of 80-59 (Table 5.11).
- The average overall index of efficiency among the six state technical college surveyed is highest (81%) in GSTC, Bukuru, Plateau and lowest (18%) in GSTC, Minna, Niger for North-Central.
- When federal and state colleges are compared, the average overall index of efficiency of the State is higher (81%) for GSTC, Bukuru, whilst that of Federal is lower at (59%) for FSTC, Orozo, Abuja with (59%), difference amounts in 22% points.

In the next section, I present the percentage distribution of TVET institutions surveyed by different ranges of overall index of efficiency for South-West states.

Table 5. 12: Distribution of TVET Institutions surveyed by range of overall index of efficiency in South-West states

Colleges/States	Overall Index of Efficiency (%)										Total
	0-9	10-19	20 - 29	30-39	40-49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100	
GSTC, Ogun, <b>Ogun</b>	-	-	-	-	-	1	-	-	-	-	1
GTC, Owo, <b>Ondo</b>	-	-	-	-	-	-	-	1	-	-	1
GTC, Oshogbo, <b>Osun</b>	-	-	-	-	-	1	-	-	-	-	1
GTC, Ibadan, <b>Oyo</b>	-	-	1	-	-	-	-	-	-	-	1
FSTC, Yaba*, Lagos	-	-	-	-	-	-	1	-	-	-	1
Total	-	-	1	-	-	2	1	1	-	-	5
<b>South-West</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>20</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>100%</b>

The bar chart for the representation in table 5.13 above is presented below.



**Figure 5. 12: Chart showing percentage distribution of TVET institutions surveyed by range of overall index of efficiency in South-West**

- As indicated for the analysis in South-West, the overall index of efficiency of the Colleges surveyed ranges from 26% to 70%; the difference amounts to 44% points (Table 5.5).
- Only one (20%) of the colleges are having their overall index of efficiency in the range of 70-79 (Table 5.12).
- The average overall index of efficiency among the five State technical college surveyed is highest (52%) in GTC, Owo, and lowest in GTC, Ibadan for South-West.
- When Federal and State Colleges are compared, the average overall index of efficiency of the State is higher at GTC Owo (70%), whilst that of Federal is lower at FSTC, Yaba with (61%), difference in amount of 9%.

In the next section, I present the percentage distribution of TVET institutions surveyed by different ranges of overall index of efficiency for South-East States

Table 5. 13: Percentage distribution of TVET institutions surveyed by different ranges of overall index of efficiency for South-East

Colleges/States	Overall Index of Efficiency (%)										Total
	0-9	10-19	20 - 29	30-39	40-49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100	
GTC, Onitsha, Anambra	-	-	-	1	-	-	-	-	-	-	1
GTC, Abakiliki, Ebonyi	-	1	-	-	-	-	-	-	-	-	1
GTC, Owerri, Imo	-	-	-	1	-	-	-	-	-	-	1
FSTC, Awka*, Anambra	-	-	-	-	-	-	1	-	-	-	1
<b>Total</b>	-	-	-	2	-	-	1	-	-	-	4
<b>South-East</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>

The bar chart for the representation in table 5.14 above is presented below.

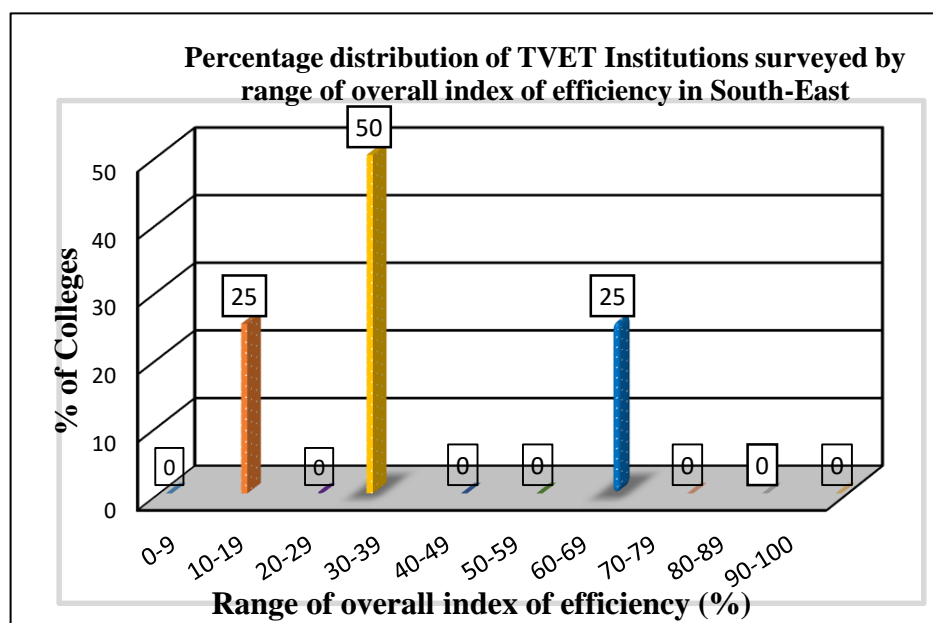


Figure 5. 13: Chart showing percentage distribution of TVET institutions surveyed by range of overall index of efficiency in South-East

- From the analysis in Table 5.5 for South-East, the overall index of efficiency of the colleges surveyed ranges from 19% to 61%; the difference amounts to 42% points.
- Only one (25%) of the colleges has its overall index of efficiency in the range of 60-69 (Table 5.13)



- The average overall index of efficiency among the five state technical colleges surveyed is highest (35%) in GTC, Owerri, and lowest in GTC, Abakiliki for South-East.
- When federal and state colleges are compared, the average overall index of efficiency of the federal is highest at FSTC Awka (61%), whilst that of state is lowest at GTC, Abakiliki with (19%), and the difference amounting to 42%.

This section presented the analysis of findings for research question three which focused on determining the efficiency level of four selected technical colleges across four geopolitical zones namely South-South, North-Central, South-West and South-East. The results show that North-Central is ranked highest with an average OIE value of 56% whilst South-East is the least having 37%.

#### **5.4 SUMMARY OF FINDINGS FOR CHAPTER FIVE**

This preliminary study sought to provide a better and deeper understanding of these issues of neglect and little emphasis to TVET provision from an empirical perspective. In doing that three research questions were considered namely:

- *What is the extent of TVET provision across the six geopolitical zones of Nigeria?*
- *How does TVET provision within these 6 geographical zones compare to the provision of general education schools?*
- *What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?*

Findings from the preliminary study, as can be seen in Table 5.14 below, reveal for the first research question that South-West has the greatest number of technical colleges at 40, whilst South-East has the fewest. Given the policy stipulation to establish at least one technical college in each State, it is imperative to note that there is no institution cited in Zamfara State in North-West geopolitical zone. For research question two, the findings revealed a highly disproportionate ratio, ranging from 1:138 to 1:70 (technical college numbers to general education school numbers). On the other hand, for research question three, on the level of efficiency of a few selected technical colleges, the result revealed that

only two zones, namely North-Central and South-West, recorded above 50%. This implies that the level of TVET provision in these technical colleges is below the desired characteristics of an efficient TVET institution as recommended by (IDEAS, 2008), and as such needs improvement.

Table 5. 14: Summary of findings for Chapter Five

S/N	SECTIONS	STATUS OF SECONDARY SCHOOL PROVISION		RATIO BETWEEN TC AND GES PROVISION	EFFICIENCY OF TVET PROVISION
	ZONES	NO. OF TCS	NO. OF GES		
1	South-South	30	4146	<b>1:138</b>	40
2	North-Central	29	4011	<b>1:138</b>	56
3	South-West	40	3507	<b>1:87</b>	54
4	South-East	16	2123	<b>1:133</b>	37
5	North-West	21	3588	<b>1:171</b>	NA
6	North-East	19	1322	<b>1:70</b>	NA

**Note:** Zones not explored are denoted as Not Applicable (NA) in the table above; General education schools as ‘GES’; and technical college as ‘TC’

In the next chapter, I present the analysis of the first research question in the main study.

## CHAPTER 6

### PRESENTATION AND ANALYSIS OF RESULTS ON THE MAIN STUDY – PHASE 1

In the previous chapter, the preliminary phase of the study was presented. This chapter presents the results of the second part of the study, namely Phase 1 of the main study. It explores the provision and efficiency of the surveyed TVET institutions across the different geographical zones against the backdrop of the existence of partnerships with other stakeholders. Furthermore, both types of partnership in existence are brought to the fore. The chapter is thus guided by the following two questions:

- *Are the TVET institutions surveyed in any form of partnership with any organisation?*
- *If so, what type of partnership are they involved in?*

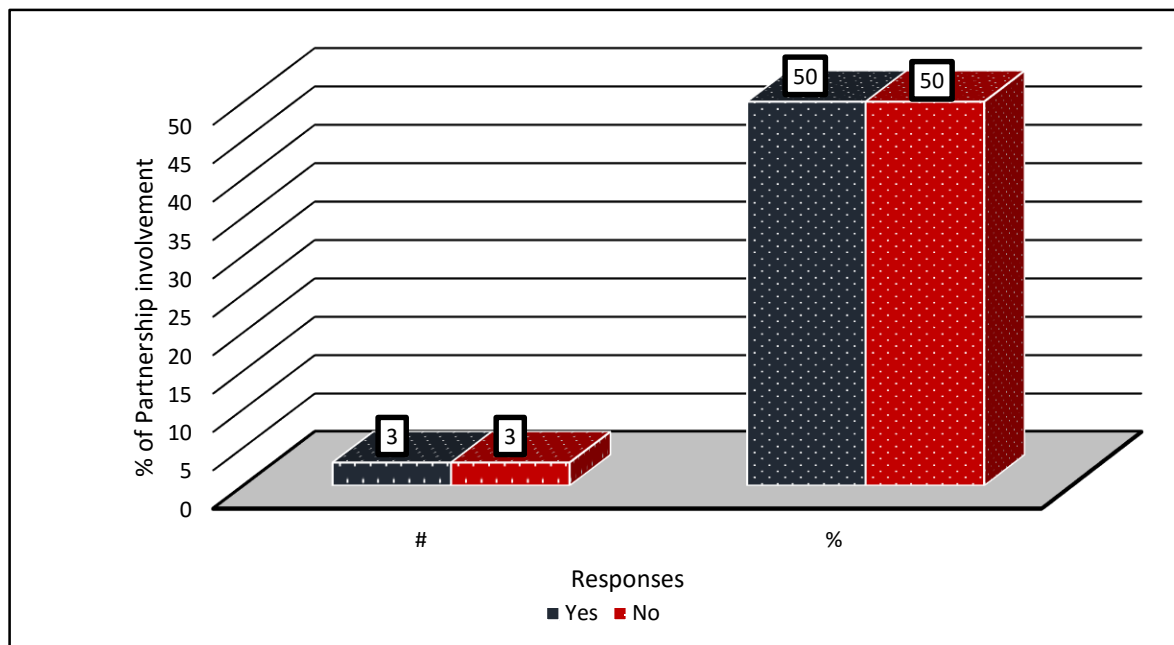
Chapter Seven will present a prelude to the analysis of the second research question in the main study on how to strengthen the existing partnerships.

To answer the questions above, data for all sections in the study was collected by a semi-structured questionnaire for the existence and types of partnerships, whilst that of the overall index of efficiency was collected from the analysis in phase three of the preliminary study.

This chapter is divided into five main sections in line with the questions posed above, namely, sections 6.1 to 6.4. These four sections present the analysis of whether partnerships do indeed exist, and, if so, what is their nature. The analysis is done with regard to TVET institutions surveyed in the four geopolitical zones. The chapter concludes with Section 6.5, which provides a summary of the research questions covered in this chapter.

## 6.1 PRESENTATION AND ANALYSIS OF THE EXISTENCE AND TYPE OF PARTNERSHIP IN THE SOUTH-SOUTH GEOPOLITICAL ZONE

This section presents the analysis on the existence and types of partnership in technical colleges within the six states of the South-South as shown in the figure below.



**Figure 6. 1: Chart showing the number and percentage existence of partnerships in colleges in South-South geopolitical zone**

As illustrated in Figure 6.1 above, all six states participated. The results show that out of the six technical colleges that participated, only three institutions are involved in partnerships with other institutions/organizations, namely GTC-Mayne Avenue, Calabar; GTC-Irrua, Edo and GTC-Port Harcourt, Rivers. The following three institutions did not seem to have any form of partnership with other organisations: UTC-Ikpa, Akwa Ibom, FSTC, Tungbo in Bayelsa and ITC Isele-Ukwu, in Delta State. This brings the percentage to a 50-50 split in the results of those TCs that are in partnerships vis-a-vis those who are not.

With regard to the second question on the type of partnership, the results show that the three technical colleges that yielded a positive response are involved in multiple

stakeholder partnerships. For example, GTC, Calabar is involved in three partnerships that range from GTC (Calabar)-PTA to GTC (Calabar)-philanthropic individuals and GTC (Calabar)-NDDC. Furthermore, it is interesting to note that both GTC (Irrua) and GTC (PH) are in a similar type of partnerships, that is, GTC-SEEFOR and GTC-World Bank.

Table 6. 1: The existence and type of partnership in the South-South geopolitical zone

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships
1	Cross River	GTC, Mayne Avenue, Calabar (S)	Yes	GTC, Calabar-PTA GTC, Calabar-Philanthropic individuals GTC, Calabar-NDDC
2	Edo	GSTC, Irrua (S)	Yes	GTC, Irrua-SEEFOR GTC, Irrua-World Bank
3	Rivers	GTC Port-Harcourt (S)	Yes	GTC, PH-SEEFOR GTC, PH-World Bank

In the next section, I interrogate this multiple stakeholder partnership observed in Table 6.1 above against the efficiency levels of these three institutions.

Table 6. 2: The existence and type of partnership against the overall index of efficiency in the South-South geopolitical zone

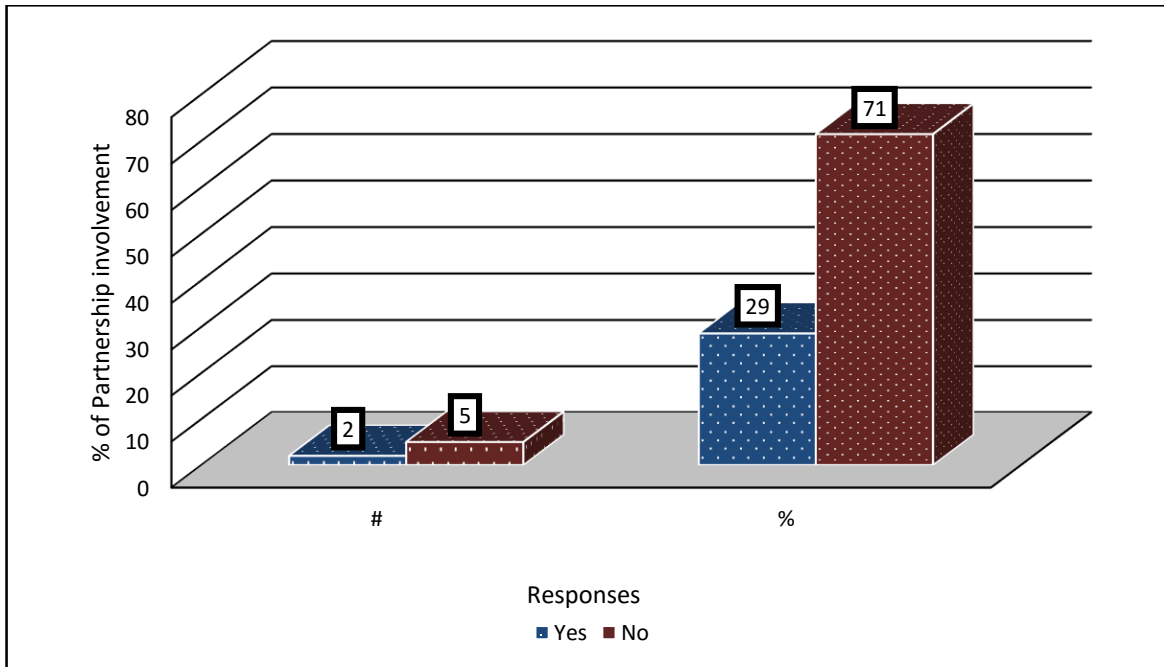
S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships	Overall Index of Efficiency
1	Cross River	GTC, Mayne Avenue, Calabar	Yes	GTC, Calabar-PTA GTC, Calabar-Philanthropic individuals GTC, Calabar-NDDC	52
2	Edo	GSTC-Irrua	Yes	GTC, Irrua-SEEFOR GTC, Irrua-World Bank	37
3	Rivers	GTC Port-Harcourt	Yes	GTC, PH-SEEFOR GTC, PH-World Bank	23
4	Akwa Ibom	UTC-Ikpa, Eket	No		47
5	Bayelsa	FSTC-Tungbo	No		51
6	Delta	ITC, Isele-Ukwu	No		27

As can be seen from Table 6.2 above, the overall index of efficiency of the South-South geopolitical zone is generally not high. The institution with the highest overall index of efficiency is GTC-Mayne Avenue at an average of 52%. GTC, Mayne Avenue, is the only institution that seem to show a high rate of efficiency linked to a high rate of partnership involvement. The other two technical colleges with very low overall index of efficiency of 37% and 23% suggest that there is no direct relation between the overall index of efficiency and partnership involvement. This is corroborated by the data from FSTC, Tungbo in Bayelsa State which shows a lack of partnerships but has the second highest overall index of efficiency of 51% in the South-South geopolitical zone.

In the next section, I present the analysis for the North-Central geopolitical zone.

## 6.2 PRESENTATION AND ANALYSIS OF THE EXISTENCE AND TYPE OF PARTNERSHIP IN THE NORTH-CENTRAL GEOPOLITICAL ZONE

This section presents the analysis on the existence and types of partnership in technical colleges within the five States and Abuja of the North-Central as shown in the figure below.



**Figure 6. 2: Chart showing the number and percentage existence of partnerships in colleges in North-Central geopolitical zone**

As shown in Figure 6.2 above, only five states out of six and Abuja (Federal capital Territory) participated. The results show shows that out of the seven technical colleges that participated, only two institutions are involved in partnerships with other institutions/organizations. These include BSUSTC, Markurdi-Benue and GSTC, Bukuru in Plateau States. Conversely, the remaining five institutions that seem not be into any form of partnerships are GTC-Erin Ile, GTC-Assakio, GSTC-Minna, GSTC-Garki and FSTC-Orozo. In other words, 29% of technical colleges recorded partnerships and 79% none.

Considering the second question on the type of partnership, the results revealed that two technical colleges yielded a positive response, while only GSTC-Bukuru is involved in

multiple stakeholder partnerships. This can be seen in these three partnerships: GSTC (Bukuru)-NBTE; GSTC (Bukuru)-NABTEB; and GSTC (Bukuru)-SUBEB. However, BSUSTC-Markurdi seems to be involved in a single stakeholder partnership, that is, BSUSTC (Markurdi) - PTA.

Table 6. 3: The existence and type of partnership in the North-Central geopolitical zone

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships
1	Benue	BSUSTC, Markurdi	Yes	BSUSTC, Markurdi-PTA
2	Plateau	GSTC, Bukuru	Yes	GTC, Bukuru-NBTE GTC, Bukuru-NABTEB GTC, Bukuru-SUBEB

In Table 6.4 below, I cross-examine the different levels of stakeholder partnership observed in Table 6.3 above against the efficiency levels of these three institutions.

Table 6. 4: The existence and type of partnership against the overall index of efficiency in the North-Central geopolitical zone

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships	Overall Index of Efficiency
1	Benue	BSUSTC, Markurdi	Yes	BSUSTC, Markurdi-PTA	71
2	Plateau	GSTC, Bukuru (S)	Yes	GTC, Bukuru-NBTE GTC, Bukuru-NABTEB GTC, Bukuru-SUBEB	81
3	Kwara	GTC, Erin-Ile (S)	No		46
4	Nassarawa	GTC, Assakio	No		59
5	Niger	GSTC, Minna	No		18
6	Abuja	GSTC, Garki	No		56
7	Abuja	FSTC, Orozo	No		59

Contrary to the findings in the South-South geopolitical zone, the results seen in Table 6.4 above show that the overall index of efficiency for North-Central geopolitical zone is

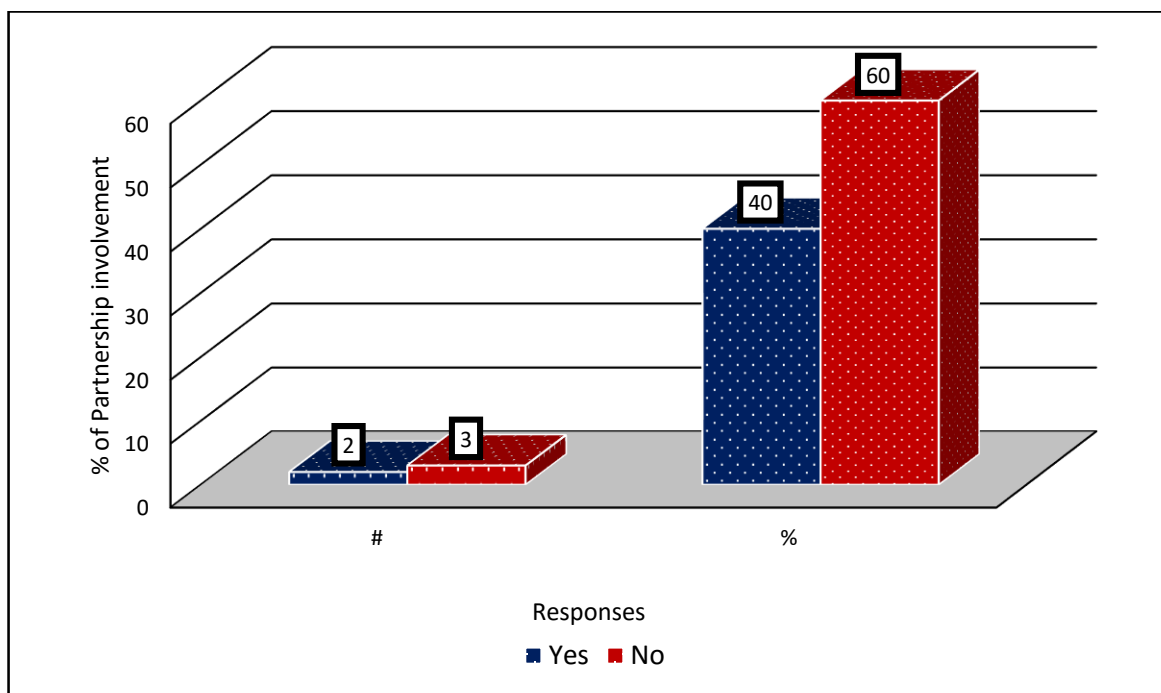


relatively high. The college with the highest overall index of efficiency is GSTC-Bukuru with an average of 81%. Besides, the two institutions involved in partnership seem to indicate a high overall index of efficiency related to high partnership involvement. This is corroborated by the data from GSTC-Bukuru and BSUSTC-Markurdi with overall index of efficiency of 81% and 71% respectively.

This section is followed by the analysis for the South-West geopolitical zone

### 6.3 PRESENTATION AND ANALYSIS OF THE EXISTENCE AND TYPE OF PARTNERSHIP IN THE SOUTH-WEST GEOPOLITICAL ZONE

In this section, I present the analysis on the existence and types of partnership in technical colleges within the South-West geopolitical zone as shown in Figure 6.3 below.



**Figure 6. 3: Chart showing the number and percentage existence of partnerships in colleges in South-West geopolitical zone**

As illustrated in Figure 6.3 above, only five states participated, out of six in the South-West geopolitical zone. The results revealed similar situation to that of the North-Central

geopolitical zone. That is, out of the five technical colleges that participated, only two of the institutions are involved in partnerships with other organisations, namely GTC-Owo in Ondo and FSTC-Yaba, Lagos States. The following three institutions do not seem have any form of partnership in existence: GSTC-Ogun, GTC, Oshogbo and GTC, Ibadan in Osun and Oyo States respectively. The analysis shows that 40% of TCs are involved in partnerships, and 60% identified no form of collaboration.

Considering the question on the type of partnership, the results show that the technical colleges with positive responses on the existence of partnerships are involved in multiple stakeholder partnerships. For example, GTC-Owo is involved in four different partnerships that range from GTC (Owo)-Elizade Motor, GTC (Owo)-Dulux Paint, GTC (Owo)-Nigerian Breweries, and GTC (Owo)-Plantation industry. FSTC-Yaba is involved in two different partnerships that range from FSTC (Yaba)-ITF/NECA and FSTC (Yaba)-SWISS/UNIDO.

Table 6. 5: The existence and type of partnership in the South-West geopolitical zone

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships
1	Ondo	GTC, Owo	Yes	GTC, Owo-Elizade Motor GTC, Owo-Dulux Paint GTC, Owo-Nigerian Breweries GTC, Owo-Plantation industry
2	Lagos	FSTC, Yaba	Yes	FSTC, Yaba-ITF/NECA FSTC, Yaba-SWISS/UNIDO

In the next section, I interrogate the different levels of stakeholder partnership observed in Table 6.5 above against the efficiency levels of these three institutions.

Table 6. 6: The existence and type of partnership against the overall index of efficiency in the South-West geopolitical zone

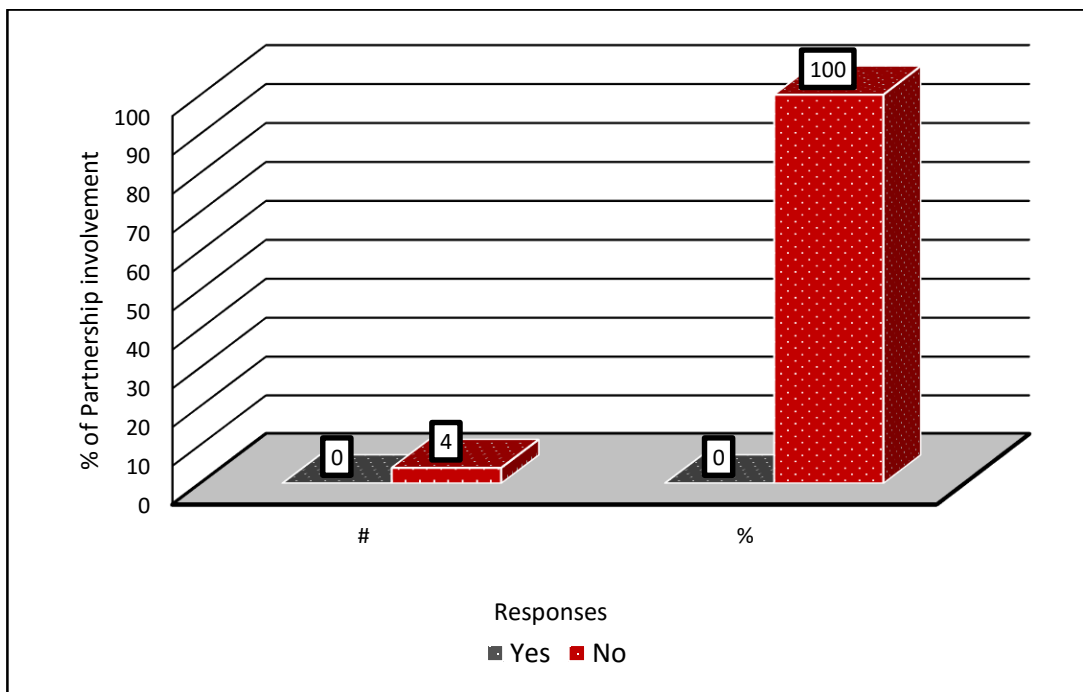
S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships	Overall Index of Efficiency
1	Ondo	GTC, Owo	Yes	GTC, Owo-Elizade Motor GTC, Owo-Dulux Paint GTC, Owo-Nigerian Breweries GTC, Owo-Plantation industry	70
2	Lagos	FSTC, Yaba	Yes	FSTC, Yaba-ITF/NECA FSTC, Yaba-SWISS/UNIDO	61
3	Ogun	GSTC, Ogun	No		57
4	Osun	GTC, Oshogbo	No		56
5	Oyo	GTC, Ibadan	No		26

Similar to the North-central geopolitical zone, the overall index of efficiency of the South-West geopolitical zone is relatively high. The College with the highest overall index of efficiency is GTC-Owo with an average of 70%. Furthermore, as observed in North-Central, both GTC-Owo and FSTC-Yaba seem to have a strongly positive relationship between the overall index of efficiency and levels of partnership involvement.

In the next section, I present the analysis of findings from South-East.

#### **6.4 PRESENTATION AND ANALYSIS OF THE EXISTENCE AND TYPE OF PARTNERSHIP IN THE SOUTH-EAST GEOPOLITICAL ZONE**

This section presents the analysis on the existence and types of partnership in technical colleges within the three states of the South-East as shown in the Figure 6.4 below.



**Figure 6. 4: Chart showing the number and percentage existence of partnerships in colleges in South-East geopolitical zone**

As illustrated in Figure 6.4 above, only three out of five states in the South-East geopolitical zone participated. It is striking to note that out of four technical colleges that participated, none is involve in any form of partnership with any organisation.

**Table 6. 7: The existence and type of partnership in the South-East geopolitical zone**

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships
1	Anambra	GTC, Onitsha	No	NA
2	Ebonyi	GTC, Abakiliki	No	NA
3	Imo	GTC, Owerri	No	NA
4	Anambra	<b>FSTC, Awka</b>	No	NA

Table 6. 8: The existence and type of partnership against the overall index of efficiency in the South-East geopolitical zone

S/N	States	Name of TVET Institution	Partnership involvement	Type of Partnerships	Overall Index of Efficiency
1	Anambra	GTC, Onitsha	No	NA	31
2	Ebonyi	GTC, Abakiliki	No	NA	19
3	Imo	GTC, Owerri	No	NA	35
4	Anambra	<b>FSTC, Awka</b>	No	NA	61

As indicated in Table 6.8 above, the overall index of efficiency of the South-East geopolitical zone is low. The college with the highest overall index of efficiency is FSTC-Awka with an average of 61%.

Notably, the absence of partnerships between technical colleges in South-East and other institutions coincides with low levels in the overall index of efficiency recorded by three out of the four colleges surveyed in the zone. This shows a corresponding pattern to the results in North-Central and South-West, where high levels of partnership coincide with a relatively high overall index of efficiency.

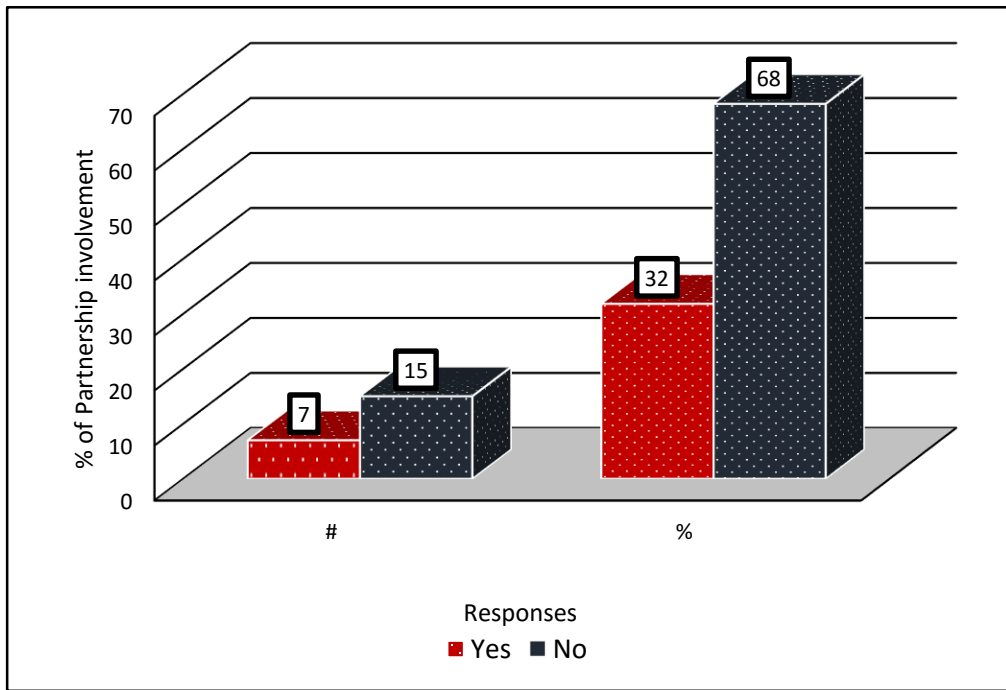
## 6.5 SUMMARY OF PHASE 1: MAIN STUDY

The summary of findings in table 6.9 below, shows that amongst the 22 technical colleges that participated across the four geopolitical zones, only seven (32%) are involved in some form of partnerships, whilst 15 (68%) are not in any form of partnership. In the South-South zone, these include GTC-Calabar, GSTC-Irrua, and GTC-PH. For North-Central and South-West, it consists of BSUSTC-Markurdi; GSTC-Bukuru, GTC-Owo, and FSTC-Yaba respectively. This implies that there is limited partnership in existence between technical colleges and other institutions surveyed across the four geopolitical zones.

It is significant to note that amongst the seven involved in partnerships, six (86%) are into multiple stakeholder partnerships, namely two from South-South, whilst North-Central and South-West both share two each. One is involved in a single stakeholder partnership.

The analysis in Table 6.9 below also shows that five out of the seven technical colleges with partnerships in existence point to a strong positive relationship between overall

index of efficiency and partnership involvement. For example, GTC-Mayne Avenue, Calabar in South-South with 52% two colleges each in North-central and South-West, namely BSUSTC, Markurdi Benue with 71%; GSTC-Bukuru 81%; GTC-Owo 70%; and FSTC-Yaba at 61% respectively. It is worth nothing, however, that two out of these seven technical colleges involved in multiple stakeholder partnerships specifically from South-South seem not to have a positive relation between their overall index of efficiency and their level of involvement in partnerships.



**Figure 6. 5:** Chart showing the number and percentage existence of partnerships across all four geopolitical zones

Table 6. 9: Summary of findings for research question one in Phase 1 of the main study

ZONE	S/N	STATE	COLLEGES	YES RESPONSES	TYPE OF PARTNERSHIP	OIE	S/N	STATE	COLLEGES	NO RESPONSES	OIE	
South-South	1	Cross River	GTC, Calabar	Yes	GTC, Calabar-PTA	51	1	Akwa Ibom	UTC, Ikpa	No	47	
					GTC, Calabar-Philanthropic individuals		2	Bayelsa	FSTC, Tungbo	No	51	
					GTC, Calabar-NDDC		3	Delta	ITC, Isele Ukwu	No	27	
	2	Edo	GSTC, Irrua	Yes	GTC, Irrua-SEEFOR GTC, Irrua-World Bank	37						
	3	Rivers	GTC, PH	Yes	GTC, PH-SEEFOR GTC, PH-World Bank	23						
	North-Central	4	Benue	BSUSTC	Yes	BSUSTC, Markurdi-PTA	71	4	Kwara	GTC, Erin-Ile	No	46
								5	Nassarawa	GTC, Assakio	No	59
5		Plateau	GSTC, Bukuru	Yes	GTC, Bukuru-NBTE GTC, Bukuru-NABTEB GTC, Bukuru-SUBEB	81	6	Niger	GSTC, Minna	No	18	
							7	Abuja	GSTC, Garki	No	56	
8	Abuja	FSTC, Orozo	No	59								
South-West	6	Ondo	GTC, Owo	Yes	GTC, Owo-Elizade Motor	70	9	Ogun	GSTC, Ogun	No	57	
					GTC, Owo-Dulux Paint		10	Osun	GTC, Oshogbo	No	56	
					GTC, Owo-Nigerian Breweries		11	Oyo	GTC, Ibadan	No	26	
					GTC, Owo-Plantation industry							
South-East	7	Lagos	FSTC, Yaba	Yes	FSTC, Yaba-ITF/NECA FSTC, Yaba-SWISS/UNIDO	61	12	Anambra	GTC, Onitsha	No	31	
					13		Anambra	FSTC, Awka*	No	19		
					14		Ebonyi	GTC, Abakiliki	No	35		
					15		Imo	GTC, Owerri	No	61		
Total Partnerships				7						15		
<b>Percentage Partnership (%)</b>				<b>32</b>						<b>68</b>		

Note: Overall index of efficiency in the table above is denoted as OIE

## **6.6 CONCLUSION**

This chapter explored the provision and efficiency of TVET institutions surveyed across the different geographical zones against the backdrop of the existence and types of partnership with other stakeholders. The results revealed that there is a relatively high overall index of efficiency for five (71%) out of seven technical colleges involved in partnership with other institutions. The results also highlighted the existence of multiple stakeholder partnerships in six out of seven institutions identified to have partnerships in existence.

In the next chapter, I present the analysis of Phase 2 of the main study, which explores how CBPAR could be used to strengthen and develop a new model for REE TVET provision in Nigerian technical colleges.



# **CHAPTER 7**

## **THE MAIN STUDY - PHASE 2**

### **USING CBPAR TO UNDERSTAND THE LOW EFFICIENCY OF TVET PROVISION – ENGAGING THE COMMUNITY I**

The previous chapter presented the analysis of findings on the existence of partnership existence in Nigerian technical colleges across the four geopolitical zones explored. This chapter is a prelude to the analysis of the second research question in the main study, namely:

- *Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?*

As explained in Chapter 4, the CBPAR model consists of five cycles, namely:

- i) Engaging with stakeholders;
- ii) Planning and designing of intervention programme;
- iii) Implementing the intervention programme;
- iv) Collection and analysis of data, and
- v) Reporting of findings (Burns et al, 2011, pp. 11-13)

This chapter focuses on the first cycle of using CBPAR, which involves community engagement. It seeks to explore the community's position about the problematic of the study before it explores ways in which partnerships could be strengthened and developed. In this regard, it presents the community's views on what they conceive to be the contributory factors to the low efficiency observed in this particular technical college.

As mentioned earlier, there were 22 technical colleges surveyed across the four geopolitical zones. However, as shown in the analysis in the previous chapter, only seven institutions were involved in partnerships with other organisations. For this Phase 2 of the main study, only one technical college was selected, a Government technical college, Port Harcourt in the South-South geopolitical zone. The selection of college for this phase was based on the following four criteria:

- Involvement in partnership with other organisations;
- The result from the first phase of the main study, which indicated that GTC, PH is an institution with such a low overall index of efficiency (23%), which signifies that there was no correlation between the level of the overall index of efficiency and the level of partnership involvement;
- Willingness to participate in the study - amongst all technical colleges involved in partnership, GTC, PH is the only institution with 100% participation (all three participants present);
- Access to the data site was granted without hesitation;
- Access to the collaborating partners was also extended with enthusiasm.

This chapter is thus divided into five main sections, namely, section 7.1, which presents a brief background on how the community was engaged in the research, and sections 7.2 to 7.5, which looks at the contributory factors to low efficiency as presented by the four sectors. The chapter concludes with Section 7.6, which briefly summarizes the results presented in this chapter.

## **7.1 ENGAGEMENT WITH COMMUNITY MEMBERS**

For the purpose of this phase, firstly, a meeting of the respective community stakeholders from academia, industry and government was convened. From academia, stakeholders consisted of technical college principal, Head of Department Motor Vehicle Mechanics Trade, and a teacher from Electrical Installation and Maintenance Trade. The stakeholders from industry included; the Director of Mic Vitto Vehicle Lab and the Engineer Rivers Vegetable Oil Company. Both industries are located about 1 kilometer from the Government technical college, Port Harcourt. From the Government, we had two stakeholders, namely, the Deputy Director Projects, Rivers State Senior Secondary Schools and the Project Manager, State Economic Empowerment for Results.

The participants were briefed on the purpose of the study, and the results of the efficiency level of the technical college surveyed were presented to them. Thereafter, issues were raised about the following two key issues:

- What contributed to the low efficiency experienced in the results presented;
- How can we improve the efficiency of this TVET institution?

This led to the next phase of the CBPAR process, planning and designing an intervention programme for the College. Stakeholders raised some of the factors that contributed to the low efficiency of TVET provision experienced in the results presented. The views presented below reflect that of trainers, employers, and government representatives which thus represents academia, industry and government respectively. I begin the section with views on these inhibiting factors initially from trainers, industry employers, and government representatives. Then I conclude with the views of students.

This stakeholder group comprises of three participants, namely the college principal, HOD MVM trade, and Electrical Installation and Maintenance Trade teacher. This section presents findings from the analysis of views of TVET trainers in response to factors that inhibit the efficiency of TVET provision in technical colleges. As illustrated in Table 7.2 below, 13 factors were raised by trainers.

## 7.1 FACTORS INHIBITING EFFICIENCY OF TVET PROVISION IN TECHNICAL COLLEGES AS RAISED BY TRAINERS

Table 7. 1: Factors inhibiting efficiency of TVET Provision in technical colleges as raised by trainers

S/No	Factors	Frequency (%)	HOD MVMT	Teacher EIM	Principal	What is being foregrounded?
1	Lack of government support	33	1	-	-	<ul style="list-style-type: none"> <li>• Failure of government in the provision of the facilities needed for training.</li> </ul>
2	Inadequate funding	100	1	1	1	<ul style="list-style-type: none"> <li>• Scarcity of funds</li> </ul>
3	Lack of training materials, tools and equipment	67	1	1	-	<ul style="list-style-type: none"> <li>• Absence of training materials, tools and equipment</li> </ul>
4	Inadequately trained teacher	67	1	1	-	<ul style="list-style-type: none"> <li>• Lack of teachers with the right knowledge</li> </ul>
5	Lack infrastructural facilities	67	1	1	-	<ul style="list-style-type: none"> <li>• Lack of desks, shortage of classroom building, and electricity supply</li> </ul>
6	Lack of conducive learning environment	33	-	1	-	<ul style="list-style-type: none"> <li>• Lack of seats in workshops and classrooms</li> </ul>
7	Overcrowded classroom	33	-	1	-	<ul style="list-style-type: none"> <li>• Overpopulated classroom due to lack of classroom.</li> </ul>
8	Lack of interest in students to learn	33	1	-	-	<ul style="list-style-type: none"> <li>• Lack of seriousness in students to learn</li> </ul>
9	Lack of teacher motivation	67	-	1	1	<ul style="list-style-type: none"> <li>• Lack of promotion for teachers</li> </ul>
10	Corrupt practices	33	-	1	-	<ul style="list-style-type: none"> <li>• Embezzlement of approved fund by people in authority</li> </ul>
11	Absence of existing technical schools' management board	67	1	1	-	<ul style="list-style-type: none"> <li>• Lack of technical schools' board managed by professional in the field of technical education.</li> </ul>
12	Lack of collaborative planning	33	-	1	-	<ul style="list-style-type: none"> <li>• Lack of planning TC programme with all stakeholders represented</li> </ul>
13	Refusal by industries to accept TC students on industrial attachment	67	-	1	1	<ul style="list-style-type: none"> <li>• Failure of students to go for industrial training</li> </ul>

In the next section, I unpack these factors outlined in the table above.

### • Lack of government support

This category refers to the absence of government's assistance in the provision of the things needed for the effective implementation of the technical college programmes. Most of the factors raised by students in the previous section lie within the jurisdiction of the government to provide. According to the HOD MVMT, that is one out of the three trainers, lack of government support hinders the implementation of technical college programme. His comment affirms that.

*...Government no longer pay attention to technical education, no incentives, ...government has also failed in their onus of giving administrative heads some impress (money meant for administration of the college), no supply of materials, tools/equipment in school for practical work...time to time workshops, seminars for trainee trainers, conducive and learning facilities (HOD MVMT, 2016)*

The analysis of the excerpt above signposts that GTC, PH lacks government support in the areas of incentives for trainers, supply of the necessary training materials, tools and equipment for practical work in the college. The comment is also suggestive that administrative heads lack the necessary funds to run the College, and this could constitute hindrances to the effectiveness of the programme.

- **Inadequate funding**

This theme refers to the insufficiency of the needed fund for effective management of technical college programme. All three trainers foreground the need for adequate funding of technical college programme as indicated in the comment below:

*Technical education is capital intensive, so adequate funds should be made available (HOD MVMT, 2016).*

Similarly, the principal advocates for assistance from other stakeholders in funding, as he remarked that:

*Non-governmental organisations, PTA, SIWES, principals, private companies should assist to fund technical colleges (TCP, 2016).*

The trainer who commented lamented on the inability of the department to fuel the power generating set in the department due to lack of funds:

*Even if there is standby generator, no money to put fuel (diesel). Right now, lack of funds; they can also finance, that is bring money to the department, to run the department ... there is no allocation whatsoever (EIMTT, 2016).*

These excerpts indicate that the college lacks adequate financing. The HOD MVMT acknowledged the cost implications of the programme, and calls for more funds to ensure proper implementation of the technical college programmes. In this same vein, the comment from the principal addresses the paucity of funds in technical colleges, and lack of collaborative funding by various stakeholders, and therefore, advocates the involvement of other

stakeholders in funding technical college programmes. Similarly, the EIM trade teacher attributed the inability of the department to run effectively to the dearth of funds; hence, the teacher appeals for funds to ensure the efficient management of the department.

- **Lack of training materials, tools and equipment**

This category refers to lack of consumables, tools and equipment used in facilitating teaching and learning in technical colleges. Similarly, as raised by the students and the MVMT HOD in the previous section, two of the three trainers bemoaned the poor state of training materials, tools and equipment. This is evident in their comments.

*...technical schools are not favoured? Science equipment are not given to us.... training materials, they are not giving to us. How can we perform, how can students perform? So, we are facing total neglect in this State particularly.... The thing is that the contactor, students have not seen it any day; as I was teaching it was very strange to them, but if government has given us the opportunity or have given us these materials, or supply these materials for the training of the students.... our government is supposed to provide these things for the training of the students, but those things are not there. Since I came, I have been into this teaching profession for more than 25 years... buy all this equipment for the training of the students, all our machines are grounded (they are not working), then, what machines shall we use to train our students? None!*  
(EIMTT, 2016)

On the same note, the MVMT trainer confirms that:

*...adequate supply of training materials, tools and equipment for students to use... learning facilities should be provided* (HOD MVMT, 2016)

Findings from the comments of both participants above highlight the fact that the college lacks the provision of training materials, tools and equipment. The comment “...but if government has given us the opportunity or have given us these materials, or supply these materials for the training of the students...” of the EIMTT implies that the use of these materials, tools and equipment for instruction will facilitate learning. From the EIMTT’s comment, “but those things are not there. Since I came, I have been into this teaching profession for more than 25 years...” it can be deduced that the college suffers from long time neglect in the provision of training materials, tools and equipment. The HOD MVMT’s comment also implies that these training materials, tools and equipment are not provided. From

both excerpts above, one can conclude that the implementation of TC programme in Rivers State will be ineffective.

- **Inadequately trained teachers**

This category refers to the absence of experienced teachers with the requisite skills in specific trades. The MVMT HOD alluded to the fact that lack of government support in trainee trainer programmes has affected the TC programme. This same point was raised by students from both MVMT and EIMT as a factor that inhibits effective TVET provision in TCs. Two (67%) out of the three TVET trainers commented on lack of trained teachers and the need to update teachers' knowledge through seminars and workshops, among others.

*eeh... we have to make sure we employ technical teachers into TCs, now you see people who attended UST, some of them from secondary schools, they don't have enough background eeh.... then, that is the problem they have, if you give them scheme of work, they don't know, only they are interested in basic electricity where they will solve Physics, so that is one. since we are lacking technical teachers, they should recall those retirees that are technically inclined to have contract with the school, so that the students will grow... let them (government) employ technical teachers, do you know that since 1995 up till now, they have not employed, like in my department, only two teachers (EIMTT, 2016).*

The analysis of the excerpt above shows that EIMT lacks technical and adequate number of teachers. According to the EIMTT, the teachers presently employed in the department of EIMT lack technical knowledge in the trade as expressed in his words “*they don't have enough background.*” The excerpt also reveals that the number of teachers in the department is inadequate. Thus, the teacher complained in his statement that “*since 1995 up till now, they have not employed, like in my department, only two teachers.*” The teacher thus suggested that the only solution to the problem of lack of trained technical personnel is to employ the experienced technical teachers, especially those that have been retired from the system. However, to solve the problem of the lack of trained teachers, the HOD MVM trade suggested that teacher developmental programmes should be organised for trainers. This, he made clear in his comment:

*...well, if government, will .... like I said earlier will pay attention to technical colleges, I think we are going to bring few of the technical college as it was before, just to bring back the glory of the colleges to what it was before, ... from time to time there should be workshops, seminars for trainee trainers...*

Further to the HOD's comment, the Electrical trade teacher added that:

*...they have to retrain teachers ...and also organise workshops for teachers here in electrical department... In vocational schools, too, although not only, another one is eeh.... teachers, has to be engaged in workshops, we have to go outside, government has to train teachers, retrain teachers after two, two years, so that they can acquire new knowledge to improve their teaching experience (EIMTT, 2016)*

The comments of the two trainers above indicate the need for staff development. For the principal, there is a need for regular workshops, and to send teachers overseas for training. Similarly, the HOD MVMT also remarked that there is a need for periodic workshops and seminars for teachers. This view was also supported by the EIMTT, that such programme will enhance their teaching experience. To ensure that what is being taught in the colleges is relevant to what is obtainable in industry, the teachers need to be sent on regular training, to keep abreast with the latest technology and the pedagogy applicable to the trade. By so doing, the relevance of such programme is guaranteed.

- **Lack of infrastructural facilities**

This category described a lack of buildings such as classrooms, workshops, drawing studios, power supply and laboratories that can support teaching and learning. Two of the three TVET trainers bemoaned the poor state of infrastructural facilities, as can be seen in this comment:

*Now, look at our desk, where students will write, we don't have; but, it's government and the head of the schools supposed to enhance the provision of this, how...then also build more classrooms ... ..in the educational system, we lack building..., look at, I have a class, this lecture we taught now was supposed to hold in the workshop, but we are using workshop, and that workshop is also classroom. (EIMTT, 2016)*

The comment above reveals that there is lack of desks in classrooms and shortage of classroom buildings. The implication of this is that if students are not properly supported, they will be distracted from effective learning. Therefore, to ensure effectiveness in teaching and



learning, there is a need for the government, together with the school head to provide desks and build more classrooms to facilitate teaching and learning. On the other hand, the teacher also laments on the inability of the department to cover all the trade areas due the absence of electricity. This, he indicated in the comment below.

*Eeh...we don't do because this jointing we don't have light that one deals with armoured cable it requires electricity, melting of solder. That is the only thing that we don't do because of no light. ...every technical college (TC), there must be light, do you know that in my school, no light, and government supply us generator which we cannot put diesel (fuel), no light, without light, no TC (EIMTT, 2016)*

Similarly, on the issue of lack of electricity, the other trainer who commented that:

*Now, that we don't have a standby generator, we can't rely on the school generator. If we have a standby generator here (in the department) we can be using it switch these machines or equipment to use it in one thing or the other (HOD MVMT, 2016)*

Both comments above revealed that the college suffers from the problem of electricity. An analysis of the comment from the EIMTT shows that the absence of electricity in the department has hindered them from carrying out their training activities because they are not able to fuel the standby generating plant supplied to them due to its capacity. According to the MVMT HOD, his department does not have any standby generator to power their tools and equipment. Most facilities in use in TVET are power-driven, so, without electricity, it is difficult to make use of any. The implication of this is that most practical work that requires the use of power tools and equipment will suffer setbacks due to the lack of power, thereby making the programme poorly executed.

- **Overcrowded classrooms**

This category refers to excess number of students occupying one classroom to during teaching and learning activities. Issues related to this category of factor has been mentioned in the section above, in the section that considered lack of infrastructural facilities. One trainer foregrounded that the classrooms are over-crowded due to lack of building infrastructure:

*Now look at students are now climbing up to learn because of the population. Like here, we don't have classroom, how can students write, when you are teaching? They can't write eeh... (EIMTT, 2016)*

The analysis of the comment above revealed that the classrooms are over-populated due to the lack of classroom blocks and as a result, students cannot learn effectively. This constitutes a major hindrance to the implementation of TC programmes.

- **Lack of a conducive learning environment**

This refers to lack of pleasant and accommodating environment for teaching and learning. One of the three TVET trainers was in agreement with EIMTS 4, who raised similar issue in the previous section. He stated that the environment in which the students are learning is not adequate. The previous point, regarding overcrowded classrooms, also buttresses the fact that the environment where these students learn are not conducive. In confirmation of this, the trainer who spoke confirmed that:

*There is need for an enabling environment for the students, like workshops and classrooms where the students will be trained in order for them to benefit from technical education ... so that each student can have place to sit down, because students cannot learn very well when they are standing, so they have to do something (EIMTT, 2016)*

The comment from the EIMTT indicated that the environment where the students are taking their classes is not well built, that is workshops and classrooms, and there are no seats in the workshops for the students to sit. This implies that their learning will be impaired, as no learning will take place in an environment that is not conducive. The students also lamented the deprived state of their classroom and other infrastructural facilities, and appealed on the government to come to their aid, by providing them with a conducive learning environment.

- **Lack of interest in students to learn**

By this category, I mean the absence of the will or zeal to learn in students. As noted in the category above, when the atmosphere of learning is not conducive, the students are bound to lose interest in learning. One of the three trainers foregrounded the fact that students are not willing to learn, as this is seen in their attitude to class attendance. His comment explains this:

*Yes! The students nowadays are not serious in their lessons, they are not all that serious, these days we find a lot of students that are not interested to learn, some of them prefer you know...as they are playing about, roaming about, .... these days we observe that sometimes teachers go to the class and be waiting for the students to come, they won't come. Sometimes you see few of them, like in a class of about twenty (20) to twenty- something to 30 students, sometimes when you go to class you see a few. Where are the rest? They are nowhere to be found! So, the students themselves must be ready*

*to learn, they have to constitute themselves to the level that at any point in time, they should be ready to learn each time the teachers needs them, each time the teacher comes to class, he/she, the teacher should be able to see a handful of them... (HOD MVMT, 2016)*

The analysis of the comment above highlights that students lack the interest to remain in class to learn as reported by the MVMT HOD: *Sometimes you see few of them, like in a class of about 20 to 20 something to 30 students, sometimes when you go to class you see a few.* The implication of not finding these students in class could be attributed to lack of conducive learning environment which they battle with, and this could also affect the teacher's motivation. This is because when the teacher comes to the class to teach, s/he expects to see students in class as indicated in the comment "*...each time the teacher comes to class, he/she, the teacher should be able to see a handful of them.*" However, when no student is seen, this could lower the motivation of that teacher.

- **Lack of teachers' motivation**

This category of factor is suggestive as being the cause of lack of commitment exhibited by teachers as raised by MVMTS 1 in the section on lack of teachers' commitment. The fact that the college lacks governmental support in the provision of the needed facilities coupled with overcrowded classroom, lack of conducive environment, and lack of interest in students could also reduce teachers' motivation in executing their duties. Two of the three TVET trainers stressed this:

*Are we talking about the way they are treating teachers in terms of promotion and other things, teachers are not favoured, ...promotion of teachers have stopped for over ten years now, thus no motivation for technical teachers (EIMTT, 2016)*

However, to ensure that teachers improve on their duties, the Principal was of the view that they:

*Motivate technical teachers, and promote them when due (TCP, 2016)*

From the analysis of both comments above, it is evident that lack of promotion of teachers has hindered their effectiveness; thus the motivation to execute their duties is hampered. From the comment of the EIMTS, one can conclude that technical teachers are not well treated when it comes to promotion.

- **Corrupt practices**

This category refers to any fraudulent procedure of doing something that contravenes the generally acceptable way of transaction. One TVET trainer stressed that the fund meant for the implementation of technical college programme is being used for purposes other than what it is meant for:

*...funding...you see, that is why, not that they are not funding, the people that are at the helm of affairs are eating (embezzling) the money... the people on the seat in the government will now suppress everything and siphon the whole money. Ministry of education that is where we are having problem. ... every year we write requisition of what we need in the department, they will say put the amount, millions upon millions will be given to them, they now pass it to governor, governor will now look at it, approve, but the thing will not reach here. We will not see the money, we will not see the materials, they will stay there and share it. That is the problem, greed! (EIMTT, 2016)*

The analysis of the excerpt above indicates that the funds meant for the management and administration of technical college programme for the procurement of training materials is being misappropriated by those at the helm of affairs, specifically those in the Ministry of Education. This implies that TC programme will suffer a huge setback in the implementation of its programme.

- **Lack of Technical Schools' Management Board (TSMB)**

This category refers to a non-existing body that is meant to manage the affairs of technical institutions in Rivers State. The absence of TSMB as stressed by two (67%) out of the three TVET trainers has affected the effectiveness of TC programme in the State. From the category on corruption, one could deduce that part of the challenges technical institutions are facing is management and administration of TVET in the State; this could also be attributed to the existence of corrupt practices that have starved the college of funds being approved for them by the government. This, they confirmed in their various comments.

*No, we don't have ...we are supposed to have technical schools' management board, and the Board is to man and structure the scheme of technical colleges, are you getting me? But this one that is existing now stands for the general, both the secondary, technical, general school and grammar, which is not fair, it is not good, because like now, take for example, the Principal who is here, didn't study technical education, he's*

*not technically inclined, and he might not do well, perfectly well in terms of the administration in terms of running of the school...Special board for technical education should be created (HOD MVMT, 2016).*

Similarly, on the need to establish a technical board that oversees the organisation and management of technical institutions in the state, the electrical teacher says:

*.... another one is this creation of technical board, it is very important because technical teachers are being marginalised because they don't have anybody to represent them ...So if the technical teachers can convince the governor, governor will now give order to create technical education board, but if they don't do it, technical education programme will be lagging behind (EIMTT, 2016)*

Both comments above reveal the need for the establishment of a special body that will manage the activities of technical institutions in Rivers State. From the comment of the HOD MVMT, it can be seen that a board that oversees the affairs of both technical and general education is already in existence, however, since it is not headed or managed by professionals in the field of technical education, the board may not function effectively. He gave the instance of their college that is managed by a non-technically inclined administrative head, as seen in lines five to eight of his comment above.

- **Lack of collaborative curriculum planning**

This implies the need for alliances in planning the technical college curriculum. The comment from two of the three trainers indicates that lack of collaboration in the TC programme is one of the challenges to effective TVET provision in colleges:

*Yes, we talk about curriculum, curriculum has to come in first, the people who are planning this curriculum, they are not inviting the teachers, the government, the non-governmental organisations, even the parents, to determine the need of the society. Because, if they now invite these bodies, they can now tell them, put this one in the curriculum it will help the company operating...If government can come in, companies can come in, school can come in, these three arms sit together and draw the curriculum; like in conventional schools, every three, three years they change their syllabus ... Yes...because those things you teach must be in consonance with what they have in the company so that when the students pass-out, those companies will not spend much in training them again... review the curriculum so that it will suit the curriculum trends (EIMTT, 2016)*

On the other hand, the MVM trade HOD also remarked that industry is not part of the TC's curriculum development:

*They (industry) are not part of curriculum development... If our graduates are well experienced, or acquire skills, there is no doubt, they will be accepted in the industry, they will be tested, and when they test them, they will definitely pass, definitely they will gain employment ... Even though they are not part of the curriculum development, there are areas that the companies will need them, will need the graduands, and those areas they will test them on those areas (HOD MVMT, 2016).*

The first three lines of the excerpts above point to the need for collaboration in planning the college curriculum, as acknowledged by the EIMTT. According to him, solving the problem of the society means collaboration amongst all stakeholders concerned in determining the TC programme, as he stated: *“the government, the non-governmental organisations, even the parents, to determine the need of the society. Because, if they now invite these bodies, they can now tell them, put this one in the curriculum...”* He suggested a periodic review of the curriculum, *“like in conventional schools, every three, three years they change their syllabus.”* This is deemed a key to aligning the TC programme to the need of the industries, as expressed in the last four lines of his comment. Although the excerpt from the MVM trade indicates a lack of industry involvement in planning the TC, his comment however suggests that the college can do without industry participation in the provision of the TC programme.

- **Refusal of industries to accept TC students for industrial attachment**

The absence of a place of attachment for industry-based experience in the course of possibly results from the lack of collaborative planning, as indicated above. Two of the three trainers complained of the lack of TC students' participation on industrial training attachment due to refusal of industries to accept them:

*...even to send the students on industrial training, nobody is ready to accept them (TCP, 2016)*

On the issue of the industries refusal on accepting technical college students for industrial training, the electrical teacher added that:

*...the purpose of vocational centres is to train skilled workers, to train students so that when they come out they will be able to fit-in in the industry, but it quite disappointing that the programme is not the way it used to be. Formerly, our students were trained,*

*they normally go for IT (industrial Training), the school send them to industries to spend some months in the industry to learn the skills. At least before the three years they spend, they have to be there three, four to five months' time before they graduate here; and also, why we are finding it difficult now is that the companies don't plan with the school ... (EIMTT, 2016).*

From both comments above, one can deduce that students of technical college rarely go on industrial training in industries. From the principal and EIMTT's comments, companies refuse these students when sent on industrial attachment. With such experience, the practical aspect of the programme where students are exposed to industry to be acquainted with or improve on their class-based theoretical experience will be lacking. This invariably leads to a failed TC policy objective which recommends industrial attachment as part of the programme requirements, and it also renders the relevance of the programme void of the necessary skills to be acquired.

The section above presented findings on the analysis of trainers' views on factors that hinder the efficiency of TVET provision in technical colleges. Thirteen categories of factors were raised by the trainers, whilst six were raised by students. A presentation of employers' views in made in the next section.

## **7.2 FACTORS INHIBITING EFFICIENCY OF TVET PROVISION IN TECHNICAL COLLEGES AS PERCEIVED BY INDUSTRY EMPLOYERS**

This group of stakeholders mainly consists of the two employers from the Automobile and Electrical fields respectively. The previous sections presented the analysis of the six and 13 factors raised by students and trainers respectively. For employers, five factors were raised from the analysis of personal interviews, focus group discussions and post intervention minutes. From the five factors raised by employers, two are similar to those raised by students and teachers in the previous section, namely, the lack of trained teachers together with the lack of training materials, tools and equipment.

Table 7. 2: Factors inhibiting the efficiency of TVET Provision in technical colleges as raised by industry employers

S/No	Factors	Frequency (%)	AIE	EIE	What is being foregrounded?
1	Misaligned curriculum;	50	-	1	• Lack of responsive curriculum
2	Lack of trained teachers;	100	1	1	• Lack of subject content knowledge
3	Lack of training materials, tools and equipment	100	1	1	• Lack of training facilities and equipment
4	Lack of infrastructural facilities	100	1	1	• Lack of electricity power supply and seats in the classrooms
5	Dearth of practical learning activities	100	1	1	• Lack of practical oriented training due to theory dominated curriculum

In the next paragraphs, I present the analysis of these factors.

• **Misaligned curriculum**

This theme refers to a curriculum content that is not in agreement with what obtains in industry. Comments from the category on lack of collaborative curriculum planning, which were raised by teachers in the previous section, as evidenced by the existence of a misaligned curriculum were also identified by one of the two industry employers, in this comment.:

*...the only role we have is to let out the information we have within ourselves, within the industry, the equipment that is involved, make it known to the school authority, the educational body so they can form their own curriculum in line with that because the theory they teach them there actually are no more in line with what we do in the industry... (EIE, 2016)*

The comment above shows that the content of the curriculum being used in the technical college is not in line with what industry need. Also highlighted in the comment is the excessive emphasis on theory. As a suggestive measure, the EIE advocated for collaboration as a solution to the problem of a theoretically-based curriculum as indicated in the words below:

*...so definitely I accept the fact that people in the teaching area, and the industry area should come together form the curriculum, they are the ones teaching people, they (Teachers) are close to the masses, we (Employers) are only in the industries solving problems to enable the company move further, as this information goes around, it is only us that are present in that company, by so doing, we can now share our ideas to the ministry of education to be able to form their curriculum to suit whatever equipment*



*that is invoke at all time. By this process, it will definitely update and sustain this programme (EIE, 2016).*

Similarly, on collaborative curriculum planning, the employer from the automobile industry remarked that:

*The government incorporating it into the curriculum as a task, should not be done by the government alone, government will do it by carrying out research, and working on some other research that have been carried out by persons and now use it to create a curriculum (AIE, 2016).*

On the other hand, the automobile industry employer further stated that partnership between the college and industry can avail the training institution some benefits such that:

*Companies can also come in and build some facilities and run it in collaboration with the school. There are some facilities that are lacking here that companies can come and build, the students will be benefitting from it, like a car wash facility for instance, I gave an instance wheel balancing facility., all those things come and install it, you run it in partnership with the school, the students benefits from there because they will be coming to see how it is done, and learning, some will even work on it, use it to do their work, and this encourages the students and also encourages the school. So, the company even if it is getting back the money they use to install it, they can say Build. Operate and Transfer (BOT), operate it after 5 years, they will now transfer it to the school, so they remove their hand, they call it BOT, school now owns it, then within that five years, they have generated the money they use to build it... (AIE, 2016)*

Both employers highlighted the need for collaboration in the planning and implementation of the technical college programme. According to the EIE, the reason why the college must partner with industry is to exploit their technological advantage to improve on their teaching and learning. The EIE further stressed that college-industry collaboration will benefit the college in accessing the latest technology, which will help policy makers in planning the college curriculum. The AIE supported the idea of collaborative curriculum planning by adding that government must not plan the curriculum in isolation, but through collaboration based on researched information. He (AIE) further stressed that such collaboration will enable industry to build and operate in partnership some equipment that is too expensive for the school to afford and to transfer ownership to the college after some years based on agreement. This, he

suggested, would ensure the achievement of relevance and the policy goal of the technical college programme.

- **Lack of trained teachers with the requisite knowledge**

This category refers to the absence of teachers with adequate content knowledge. This category was also alluded to by students and TVET trainers in the previous sections as factors that hinder effective TVET provision in TCs. The two industry employers' advocated periodic training for technical college teachers to ensure the updating of knowledge:

*The area that the teachers having work to do is their teaching scheme, I find out that they have fault finding as a topic, but they have not shown these children fault finding using computer theory and practical, why.... I also sensed that the teachers don't even know how to use this tool, it could also be that the people that have supplied the equipment did not train them... (AIE, 2016)*

From the analysis of the comment above, it can be seen that the present crop of teachers in technical college lack adequate content knowledge to carry out effective teaching and learning, the employer's comment implies that the teacher lacks the competency to use the tool. Students from MVMT, EIMT and teachers have also stressed the issue of lack of training for the teachers, and the need to employ or upgrade teachers' knowledge to ensure that teachers dispense the right knowledge. However, to improve on teachers' content knowledge, the EIE suggests that teachers embarks on periodic developmental training:

*Time to time seminars required for strengthening, because even in the industry there is upgrading, there is what we call upgrading, there are technologies that will come up, and when these technologies come up, immediately, they send us on training, to be useful to those equipment, to know how to operate them technically...the idea we from the industry is going to bring is nothing more than to expose, send out information needed to the teachers which are directly involved on day-to-day planning with the students (EIE, 2016)*

In agreement on the need to upgrade teachers' knowledge, the employer from the automobile industry remarked that:

*Then, at that point, the next area is the tutors, then the people that will teach, there should be experts, either that government send the existing teachers for an in-service training, give them more training on using these tools, because they know how to teach*

*about fault finding, but fault finding using these tools....so the teachers need an in-service training on how to use this tool because that is outside their knowledge about fault finding, that one is a different knowledge so they need training so they will now impart it to the students.... government also should create room for teachers to go and learn this, sponsor it, the training, because this is not inside what they teach them when they were learning in the campus (AIE, 2016)*

The analysis of employers' comments above reveal there is a need for technical college teachers to embark on teacher development programme. The EIE employer submits that as technology improves, there is also a need to update teachers' knowledge alongside it, so that they will keep pace with modern developments in the world of technology. In agreement with that, the AIE remarked that such training should be tailored towards the use of modern technology, and that the government should sponsor such training.

- **Lack of tools and equipment**

This theme refers to the absence of the tools and equipment needed during the intervention programme. The two (100%) employers emphasised this in their various comments.

*...coming to the equipment, it's not also available, if not that we brought down these ones, it was not available. If those things can be provided, subsequently it will be used, and sustaining this programme I keep repeating it (EIE, 2016)*

Similarly, the other employer concurred that teaching has been impaired:

*"...because they don't have any form of facilities in place, and...eeh...it has not been a trend that after teaching the theory side, they should also take the practical side of it using the computer (AIE, 2016)"*

The analysis of the excerpts above shows that the intervention programme experienced a challenge regarding the availability of training materials, tools and equipment. However, this problem was taken care of by both employers, as they came with the needed tools and equipment to ensure the effective implementation of the intervention programme.

- **Lack of infrastructural facilities**

This category refers to the absence of electricity. Two of the employers, that is the Electrical and Automobile, noted the absence of electricity in the classroom. This he made clear in his comment:

*Eeh...the challenges are power supply, availability of seats (in the classroom), poor power supply and logistics (EIE, 2016)*

Similarly, the automobile employers concurred that:

*.... Then also, power supply, eeh...if there were good power supply, that day we had challenge with battery in the vehicle we wanted to use, but if there were good power supply we can just put it in a battery charging system, and it charges and we work with it, .... but I found out that from the classroom down to the lab side I walked to, there was no power supply, so they (Government) should do something about power supply, Government should assist them with power supply (generator light, NEPA light), it should be steady, none should be lacking or inverter.... They should introduce all these alternate power systems for the eeh...eeh...departments (AIE, 2016)*

From the analysis of the comments above, it is right to conclude that college classroom does not have electricity as confirmed in the excerpts of the two employers. This observation was made when the AIE visited the classroom that was to be used for the intervention lecture. From AIE's comment, the programme was obstructed due to lack of electricity.

- **Dearth of practical learning activities**

The emphasis of this category hinges on the absence of learning that deals with the manipulation of real objects or materials. Similarly, as raised by most of the students, both employers stressed the need for a practical-oriented learning as indicated in the comment below:

*My brother they are eeh...not prepared because studying more of theory without practical eeh.... is not advised for students because when they come out they will not be compliant, because everything we have today in the workplace is purely computerised and electronics. So, if you have been taught with theory, theory, theory, you are not acquainted with eeh...practical especially using computers, you will end up being the old type of workmen we used to have (AIE, 2016).*

The analysis of the AIE's comment above revealed that the college is lacking practical-based teaching, and that their teaching is based on theory which does not equip the students with the type of skills needed for this present age.

The issue of the dearth of practical learning was also raised by students who decried the poor state of practical activities in the college and called for improved teaching and learning

that is based on practice. On solving the problem of theory-based curriculum, the EIE was of the view that:

*This technical programme should be done at the higher level, not this lower level. What do I mean by that? Only where we can make this change(s) is by reprogramming this curriculum, this NBTE (National Board for Technical Education) curriculum... practically-oriented programme should be added, because it is only when you have a change at the top, through the brochure, it comes down to class (EIE, 2016)*

The employer’s comment above reveals that technical college curriculum should be reviewed to include a practically-oriented programme. He further suggested that the review should be done at the federal ministry of education for it to more effective, the reason being the need to equip students with the needed practical skills.

In the next section, I present the analysis of findings from the government stakeholder group.

### **7.3 FACTORS INHIBITING EFFICIENCY OF TVET PROVISION IN TECHNICAL COLLEGES AS PERCEIVED BY GOVERNMENT REPRESENTATIVES**

This stakeholder group consists of two participants representing the government. Specifically, they represented the Rivers State Secondary Schools Board (RSSSB) and the State Employment Expenditure for Result (SEEFOR). As illustrated in Table 7.4 below, two factors were raised by this group of stakeholders.

Table 7. 3: Factors inhibiting effective TVET Provision in GTC, PH as raised by Government representatives

S/No	Factors	Frequency (%)	SEEFOR Rep	RSSSB Rep	What is being foregrounded?
1	Lack of training materials	50	1	1	• Lack of training materials
2	Lack of power supply	100	1	1	• Lack of adequate and sustainable power supply

In the next section, I unpack these categories.

- **Lack of training materials**

This category refers to the absence of consumables used for teaching and learning technical subjects. One of the two participants stressed on this in his comment.

*...and lack of training materials... (SEEFOR Rep, 2016)*

The comment above shows that the intervention had challenges due to lack of training materials, and thus, this also constitutes a hindrance to the implementation of TC programme as well.

- **Lack of power supply**

This theme refers to the absence of electricity. Two of the government representative foregrounded this:

*...lack of power supply (SEEFOR Rep, 2016)*

The Representative from Schools Board concurred by adding that:

*“Without adequate and sustained power supply, it will be impossible to change the present situation of our TVET institutions (RSSSB, 2016)*

Both excerpts above show that the intervention programme was interrupted by the lack of electricity. This, the second speaker acknowledged that the sustenance of TVET institutions is dependent on a sustainable power supply.

## 7.4 FACTORS INHIBITING EFFICIENCY OF TVET PROVISION IN TECHNICAL COLLEGES AS PERCEIVED BY GTC STUDENTS

Table 7. 4 Factors inhibiting efficiency of TVET Provision in technical colleges as raised by GTC students

S/No	Factors	Frequency (%)	MVMT (%)	EIMT (%)	What is being foregrounded?
1	Lack of practically oriented TC training	50%	4	2	<ul style="list-style-type: none"> <li>• Teacher lack of practical experience</li> <li>• Lack of material to train them on practical</li> </ul>
2	Corrupt practice	8.3	1	-	<ul style="list-style-type: none"> <li>• Failure to use funds for the purpose it is meant for</li> </ul>
3	Lack of trained teacher;	33	2	2	<ul style="list-style-type: none"> <li>• Lack of qualified teachers</li> <li>• Lack of teachers with practical knowledge</li> </ul>
4	Lack of training materials, tools and equipment	33	-	4	<ul style="list-style-type: none"> <li>• Lack of training materials and equipment</li> <li>• Lack of functional equipment</li> </ul>
5	Lack of teacher commitment;	8.3	1	-	<ul style="list-style-type: none"> <li>• Failure of teachers to undertake the duty they were employed for.</li> </ul>
6	Lack of conducive learning environment; and	8.3	-	1	<ul style="list-style-type: none"> <li>• Lack of chairs, ceiling fan, and electricity</li> </ul>
7	Lack of effective monitoring of technical college programmes by the government.	8.3	1	-	<ul style="list-style-type: none"> <li>• Failure of the government to monitor the implementation of TC programme</li> </ul>

I unpack these factors below.

### • Lack of practical-oriented training in the TC programme

This category refers to the absence of learning that deals with the manipulation of real objects or materials. Significantly, 50% of the students, that is six out of 12, four from the MVM trade and two from EIM decried the dearth of practical learning activities in their respective trades:

*When I heard the word technical college, I taught maybe if you come here, you are coming to do practical and leave, but when I came here, although some people are doing.... This our department (sigh) we are not doing that (practical)... we have not had practical, rather when we ask our HOD that Sir, I think today is Wednesday, our practical day, we supposed to be in the department doing practical.... when we ask him, he say leave, leave, later, we are going to do (MVMTS 2, 2016).*

Similarly, on the issue of dearth of practical learning, another student shared his experience:

*... but our school in Motor Vehicle Mechanics, we don't do any practical, no atom of practical.... What the teacher does is just come to the class teach us about a particular subject, we do understand sometimes because due to the way we have seen it, some of us do own a car, some of our friends do own a car, we do see all these things but we don't know the specific use and specific demonstrations of those things, (MVMTS 1, 2016).*

In affirmation of the comment above on the dearth of practical training in MVMT department, another student alleged that:

*...in the school we have practical problem, we don't do practical at all, but we have paid for it, and everyday the HOD will continue asking for the money, he comes like everytime, he doesn't talk anything about the practical, if you remind him, he will use jokes and other funny things to cover it up, and then he will run back to his office. If you go his office and tell him, he will promise ... (MVMTS 5, 2016).*

Another student from MVMT lamented his experience as relates to practical learning activities:

*I think that this school should be functioning well, because past years ago, they said that this school is functioning that they do a lot of practical, but now everything has changed nothing like practical again, I think the programme is good, if the World Bank can help us or any organisation to be doing practical, we need to be working ... (MVMTS 6, 2016).*

The four excerpts from the MVM trade students all point to the fact that the three students share similar views on lack of practical-oriented training. However, MVMTS 5 lamented how student contribute their personal monies to ensure the practical is carried out, yet nothing is done. On the other hand, the last participant (MVMTS, 6) who spoke on the issue of lack of practical training, pleaded for an intervention from the World Bank to ensure the commencement of practical-oriented training in the college.

A student from Electrical Installation and Maintenance Trade shared similar view with students from MVM trade, that in their department they also have challenges with doing their practicals. This, he confirmed in his comment:



*I want to say something concerning our practical aspect, the practical aspect of this department called electrical is too poor in the sense that whenever we want to carry out our practical, it's almost the same thing every day, weekly, time-in time-out we are almost learning the same thing, I think that we are stagnant (EIMTS 1, 2016).*

On the plea for assistance for the commencement of practical training this student appealed that:

*Government should help us more in order to bring out more practical that we can do better than the ones we used to do before, as of before we don't use to do any other one apart from the one we did today (EIMTS 2, 2016).*

From the analysis of the excerpts above, it is obvious that MVMTSs lack practical learning. All comments allude to the fact that it is either their teacher lacks the practical experience or the material to train them on practical is lacking, as could be seen in the excuses he (the teacher) gives to the students. On the other hand, EIMTS decried the poor state of practical training in their department and EIMTS 1 lamented the repetition of practicals, which adds nothing to them in terms of knowledge. On how to ameliorate the problem relating to the lack of practical oriented training students from both trades, specifically MVMTS 1 and EIMTS 2 pleaded with the World Bank and Government respectively, to come to their aid. EIMTS 2 appealed to the government to assist them in improving the level of practical training in their department. The zeal and willingness to learn the practical aspect of their trade can be deduced from the comment of MVMTS 5, as the students made personal contributions to ensure the procurement of training materials for practicals, yet they still do not undertake these practicals. The reasons were that their teacher is deficient in practical knowledge, as can be read in his comment above.

This implies that students pay money to their teachers for the acquisition of training materials so they can be engaged in practical activities, but these teachers do not procure these materials. As a result, these end up not doing the practical due to excuses from their teachers.

- **Corrupt practice**

This category refers to any fraudulent procedure of doing something that contravenes the generally acceptable way of transaction. One of the 12 students, from MVM trade, stressed that monies paid by MVM trade students for the procurement of training materials for practical training are not being utilised as indicated in the comment below.

*...but we have paid for it (procurement of training materials for practical), and everyday the HOD will continue asking for the money, he comes like everytime, he doesn't talk anything about the practical, if you remind him, he will use jokes and other funny things to cover it up, and then he will run back to his office. If you go his office and tell him, he will promise ... (MVMTS 5, 2016).*

From the excerpt above, it is indicative that monies paid by MVM trade students for the procurement of training materials to ensure the commencement of practical training to their HOD are not used for the purpose it is collected for. This depicts a corrupt practice and also hinders the effectiveness of the programme.

- **Lack of trained teachers**

This category refers to the dearth of qualified teaching personnel. It can be seen that four of the 12 students, that is two students each from MVM and EIM trades, foregrounded the fact that the teachers they have are not well equipped with adequate knowledge to execute the job they were employed to do. This was due to the inability of the teachers to adequately take the students on the various practical aspects of the trades for which they are registered for, as illustrated in their comments. In fact, this category was also alluded in some of the comments above.

*I think government should also help, in this school we need the government, especially, government should bring some trained teachers, even the ones we have here, I'm not sure they are trained, as in more qualified to attend to this job, they should try as much as possible, if they are no more qualified to attend to this job, they should go and get more experience, and get more knowledge on it. Government should help, more trained, more trained people should be employed... Like this wheel balancing, the machine that the World Bank gave to us, they said that they cannot use it, and they said they do have the manual own (type), so we said if you have the manual type, why can't you (HOD) help us so that we can contribute money, as far as it is practical, go to some workshops then you will teach us how to do it, he will not volunteer, he will just be doing (sigh)... (MVMTS 1, 2016)*

The student identified the lack of trained teaching personnel. A clear indication of that is seen in the desire from the students to ensure they acquire the practical knowledge, but due to lack of practical skills on the side of the teacher, their plan was truncated. It is also obvious that these students are having difficulties in acquiring the practical skills which technical

colleges are known for, since there are machines donated to them that do not have someone to operate them. Students explained how to remedy the problem associated with the deficiency in teacher knowledge with regard to operating certain equipment (wheel balancing), but no attention was given to that. Similarly, a student complained about the issue of lack of trained technical teacher, as they continued on the same topic:

*.... Me I used to see that he is not specialised on that because last term he was just only teaching us about battery, battery, battery, battery, battery, how battery do this, that that (MVMTS 2, 2016)*

In furtherance of the need for a trained teacher, another student has this to say:

*..... Based on the teachers we have now, I find out that they are all theory teachers, they are not having foundations in practical, you will see some of these teachers, they will give us practical to do, and when we do it, based on the way they drew it, you will find out that the way they drew it is not the way they want it. They don't know the drawing based on how they want the work to be, they will ask us to go back, and do the work and restart the work and work it back, and when you now study, this work is not the way they drew it, they don't know the practical aspect, they only know the theory aspect. So, I advise the government to provide us practical teachers just the way they provide to the Craft centre, they have enough practical teachers, very good ones. We don't have enough practical teachers here, we only have the theory teachers (EIMTS 6, 2016).*

Similarly, in addition to the comment above, another EIMTS remarked that:

*What I will like to say is that in our school, government technical school .... we lack teachers, practical teachers, our HOD only knows about theory. We need practical teachers so that as our teacher will be teaching us, we'll get more experience in practical because without the practical, we won't understand what they are teaching us (EIMTS 5, 2016)*

The excerpt above justifies the need for teachers that are well grounded in both theory and practical. From the analysis of the excerpts above, there is an implication that GTC, Port Harcourt TC lacks trained teachers with practical knowledge. The comments from both MVMTS and EIMTS all affirm that the present crop of teachers in their college are not practically-oriented, and as such they (the students) are calling for government's intervention, to employ trained teachers equipped with skills in the trade related areas. This is because the

effectiveness depends on adequately trained teaching personnel to execute the training to equip students with the desired skills.

- **Lack of training material, tools and equipment**

This theme points to the absence of the materials, tools and equipment needed to execute training. Four out of the twelve (12) students, all from EIM trade, stressed the absence of training materials, tools and equipment:

*He didn't take us deep into it in the sense that he didn't have the materials there with him ...and two, he hasn't even shown us what is contactor in time past for the fact that we have been here for two years, but it's just that an outsider just came and made us to understand what is contactor as electrical student. If government will at least provide machines that we will be operating on, and other equipment and expose us to other electrical equipment because here we are, like we are caged, we don't know most electrical equipment, like this contactor, I myself, I have not even heard about it (EIMTS 1, 2016)*

*...but the equipment, the school lack equipment a lot (EIMTS 4, 2016)*

The analysis of the comment above shows that the college lacks the necessary equipment to facilitate teaching and learning in Electrical Installations and Maintenance Trade. The students are also deficient in knowledge due to their limited use of electrical machines as reported: “*like we are caged, we don't know most electrical equipment, like this., I myself, I have not even heard about it.*” It can also be seen in the excerpt that these students are not exposed to certain training materials and equipment due to lack of these facilities. From the second comment, it is also confirmed that not only does Electrical Installation and Maintenance department lack equipment, but the college in general.

In addition to the comment above, another EIMTS said:

*... like this is a technical school, we need to establish equipment because we don't have equipment as you can see. I also will like the government to establish equipment so that we do theoretical and practical side as earlier did in the contactor (EIMTS 3, 2016)*

The three excerpts above demonstrate the lack of the necessary equipment in the department of EIMT, and a call to the government for the provision of the needed equipment to ensure students are engaged in theory and practical learning. However, the only student who

confirmed the presence of any equipment in his department lamented its non-functionality, and the inadequacy in the provision of training materials, as he described below:

*Yes, we have it, but we don't have enough materials, it's not functioning (EIMTS 6, 2016)*

As can be seen in all four excerpts above, the comments from the EIM trade students show that GTC, Port Harcourt lacks training materials, tools and equipment, and this affects the lesson taught as stated by EIMTS 1 and 3. In the first comment from EIMTS 1, he complained that the explanation given by their teacher on how to connect a contactor in a three phase electric motor was superficial since the training/instructional material was not handy. Similarly, EIMTS 2, 6 and 1, and MVMTS 1 in the two categories above, indicated the lack of practical-oriented learning and trained teachers. EIMTS 1 and 3 were pleading with the government to intervene in the providing their college with these training materials, tools and equipment to ensure effectiveness in both theory and practice, as stipulated in the curriculum.

The students also commented on lack of training material, tools and equipment as one of the challenges they encounter in their programme. They further expressed their dissatisfaction on the level of facilities in the colleges and wanted the government to do something about it.

- **Lack of a conducive learning environment**

This category refers to an atmosphere that is devoid of any form of distraction or hindrance to effective teaching and learning. One of the 12 students, from EIM trade, foregrounded this in his comment, as indicated here:

*One thing I want to say about this our department is that our department is not well arranged, everything is just messed up, like sometimes our chairs, and sometimes most especially cubicles I will plead with the government on our behalf, to help us change our class as in, they should come and make our class okay, give us a standard environment for learning like fans, electricity in the class, so that even ceiling too, we don't have, that is why most of the students get tired of learning. We plead with the government to help us acquire what we came here for (EIMTS 4, 2016)*

As can be seen in the comment above, the environment in which the students are being taught is not conducive. The excerpt above alludes to the fact that the classroom lacks some basic facilities and amenities such as fans and electricity, and this has affected the way these students learn as seen in the comment by EIMTS 4 above. From the student's comment, it is

suggestive that lack of conducive environment has some psychological effective on students' learning which may affect their performance as indicated: *"even ceiling too, we don't have, that is why most of the students get tired of learning"*.

The implication is that lack of a conducive learning atmosphere has affected these students' performance.

The section above presented an analysis of findings on the six categories of factors that constitute hindrances to the REE TVET provision in technical college in Rivers State. In the next section, I turn my gaze to the analysis of factors that inhibit the effectiveness of TVET provision in the TC programme, according to trainers' views.

- **Lack of teacher commitment**

This category refers to the absence of zeal and will from the teachers to do what is right with regard to going to the classroom to teach when they are expected. According to the only student who spoke from MVM trade, their teachers are not committed to their duties:

*...The things that they (teachers) do, they will just stay in the staff room be discussing, they will not attend to the period, if you check the things that the government has brought (logbook), every day they are signing books. Like last week, it's hardly for me to see a teacher in the class, even though the teacher is coming, only some serious teacher that we have, 100% of teachers, only 30% are serious in their work ...*  
(MVMTS 1, 2016)

Apparently, teachers do not show any sign of commitment to their duty. It can be seen that they take advantage of the government's poor attitude in effective monitoring on what is happening in the college to only sign the logbook, but never do their job. As can be seen in the comment, the student reports that only 30% are serious with their work.

- **Lack of effective monitoring technical college programme by the government**

This category refers to a lack of periodic visits to TC by the government in monitoring the activities in college staff to ensure effective implementation of the programme, as reported by one of the 12 students. According to the student, teachers do not show commitment to their duties and this has resulted to students' involvement in cultism (practice of occult activities):

*....and government also should put their eye in this school, especially Government technical college (GTC), Port Harcourt (PH), the school is nothing to write home about because if there is practical in this school every Wednesday, as in we are having*

*Wednesday's practical, I don't think that there will be cultism in this school, I don't think so...government should really help us, they should put their eye, they should send some invigilators (monitoring team) that are upright, because some invigilators will come here they will just go around, they will see what is going on, but they will just go and give the government fake data of what is going on and the school will just be going recklessly (MVMTS 1, 2016).*

The analysis of the excerpt above highlights that the learning condition in the college is impaired. This is indicated in his comment which says “*especially GTC PH, the school is nothing to write home about because if there is practical in this school every Wednesday, as in we are having Wednesday's practical, I don't think that there will be cultism in this school, I don't think so.*” The student attributed cultism in the college to the lack of students' engagement in active practical learning. He further remarked that the government should have an eye on the colleges by monitoring it as he clearly stated that: “*government should really help us, they should put their eye, they should send some invigilators (monitoring team)*”. The essence of his appeal is so that students will benefit from what they have registered for. Besides, the student clamoured for government to send honest persons (a monitoring team) who will report the exact situation on ground as stated: “*invigilators that are upright, because some invigilators will come here they will just go around, they will see what is going on, but they will just go and give the government fake data of what is going on and the school will just be going recklessly*”. The implication of the student's appeal is that there are monitors who will visit, having the full knowledge of the extent of problem in the college, but will give a wrong report. This problem of lack of effective monitoring could also be linked to the reasons why teachers are not committed to their duties, since they have an understanding that the government is only interested in checking the attendance record without ensuring if the teachers were there or not. So to ensure the proper implementation of TVET provision in TC programme, there is need for the government to monitor the Colleges with qualified and honest personnel who will report the true state of the college so that adequate attention will be given to it.

## **7.5 CONCLUSION**

As illustrated in Table 7.5 below, all stakeholders share similar views on *lack of training materials, tools and equipment*. More so, the students, trainers, and industry employers share like views on *inadequately trained teachers*. Trainers, industry employers, and government stakeholder group share similar views on the *lack of infrastructural facilities*. Furthermore, the

student stakeholder group and industry employers share similar views on *lack of practical-oriented learning*. Conclusively, students and trainers agreed on the *lack of conducive learning environment* and *corrupt practices*.

Table 7. 5: Stakeholders with similar views (points of convergence) on the inhibiting factors

PARTICIPATING STAKEHOLDERS				
S/N	Academia		Industry Employer	Government
	Students	Teachers		
1	Lack of training materials, tools and equipment	Lack of training materials, tools and equipment	Lack of training tools and equipment	Lack of training material
2	Lack of trained teachers	Inadequately trained teachers	Lack of trained teachers	
3		Lack of infrastructure	Lack of infrastructure	Lack of infrastructure
4	Lack of practical-oriented training		Lack of practical-oriented learning	
5	Lack of conducive learning environment Corrupt practices	Lack of conducive learning environment Corrupt practices		



# **CHAPTER 8**

## **THE MAIN STUDY - PHASE 2**

### **USING CBPAR TO UNDERSTAND**

### **HOW TO IMPROVE AND STRENGTHEN TVET PROVISION**

### **– DESIGN, IMPLEMENT & INTERVENE**

The previous chapter presented the analysis of the prelude to the analysis of the fourth research question four, by foregrounding community understanding of the problematic of the study. This chapter presents the analysis of community members views of stakeholders needed to strengthen the existing partnerships for REE TVET provision in GTC, Port Harcourt. This chapter directly addresses the second research question in Phase 2 of the Main study, by asking the question:

- *Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?*

In this chapter, we have to first consider how to strengthen the existing partnership, followed by the development of a new model of REE in the following chapter.

In this regard, this chapter focuses on the second to the fourth cycles of the CBPAR model as presented below:

- i) Engaging with stakeholders;
- ii) Planning and designing of intervention programme;
- iii) Implementing the intervention programme;
- iv) Collection and analysis of data, and
- v) Reporting of findings (Burns et al, 2011, pp. 11-13)

Based on the results of the first community engagement meeting, all stakeholders agreed that there is need to embark on an intervention programme. The intervention was designed for a single topic each for both Motor Vehicle Mechanics (MVM) alongside Electrical Installations and Maintenance (EIM) Trades. The Colleges agreed to provide a place for both lectures, whilst the two industry personnel agreed to transport their equipment to the training site.

Firstly, the intervention programme was designed for Vocation I<sup>4</sup> MVM Trade on Faultfinding and Diagnosis using an On-board Diagnostic tool. The activity included theoretical teaching by the MVM HOD, followed by the practical aspect from the industry personnel. Secondly, that of EIM trade was designed based on the topic: The Use and Function of a Contactor for Vocation II<sup>5</sup>. This topic, according to the EIM teacher, is very important to students of the trade because almost every industry makes use of the three phase industrial motor, which has a contactor as part of its component. However, the teacher complained that, as important as the topic is, it is not included as one of the topics to be studied in the EIM Trade component. The activity includes the EIM teacher teaching them theoretically, followed by industry personnel who did the same, but this time practically.

Before implementing the intervention programme, an inspection of the training site was made by stakeholders of the community. Thereafter, the intervention programme was carried out for a period of two months. During the implementation, both industry personnel came once and taught the students due to insufficient time. After each of the lessons, each of the students from both trades that participated in the lecture was called to demonstrate practically what they have been taught, which they did.

Data was collected from the community partners from minutes of meetings, personal interviews and focus group discussions. The stakeholders involved came from the following sectors:

#### **GOVERNMENT TECHNICAL COLLEGE**

- Technical college principal (TCP)
- Head of Department, Motor Vehicle Mechanics Trade (HOD MVMT)
- Teacher, Electrical Installation and Maintenance Trade (TEIMT)

#### **INDUSTRY**

- Director Mic Vitto Vehicle Lab (Automobile Industry Employer) (AIE)

#### **GOVERNMENT**

- Deputy Director (Projects) Rivers State Senior Secondary Schools Board (RSSSB)

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<sup>4</sup> Equivalent to Grade 10

<sup>5</sup> Equivalent to Grade 11

- State Employment and Expenditure for Results (SEEFOR)

The presentation of the analysis is organized according to the instrument used to collect the data.

## **8.1 PRE-INTERVENTION MINUTE OF MEETING**

### **8.1.1 Government Technical College**

The college consisted of three participants that represented the institutions namely; the principal, HOD MVM and Teacher EIM trades. The analysis is presented in the same order, with the principal first.

#### **8.1.1.1 Principal**

Analysis of the principal's comment suggested a multi-stakeholder category, namely a National Board for Technical Education (NBTE)-Company-School-Government partnership.

The above listed stakeholders are evident in the comments below:

*It will be eeh the NBTE (National Board for Technical Education), that is the technical education board, to design a model that will attract these companies.... through partnership with the companies, the end-users, that is the companies. Like in Rivers State here, we are from the Riverine, and the oil and gas industries are bound and most of them are offshore, we should know underwater welding, and this underwater welding .....in the school here, nobody takes it. So, if we are in partnership with the company that handles that they can go on industrial training, like Coca Cola company there are some equipment which they have which we are used to "... the school is the player, by the school I mean the teachers here, they have to make recommendation to the government, the company too... government should play a major role because its financing, government supposed to come in, the role of the government here is to finance the expertise... (TCP, 2016)*

From the excerpt above, it is evident that strengthening the existing partnership means the NBTE will champion the course of collaboration amongst the company, school and the government. The principal also commented on the need to partner with companies that specialize in indigenous trades such as 'underwater welding' that are peculiar to the state where

the college is sited. This, he illustrated in his comment as *“Like in Rivers State here, we are from the Riverine, and the oil and gas industries are bound and most of them are offshore, we should know underwater welding, and this underwater welding .....in the school here, nobody takes it. So, if we are in partnership with the company that handles that they can go on industrial training”*. On the other hand, he described the role of the school through teachers’ involvement in making the needed recommendations to the government, whilst the government assumes the responsibility of funding the manpower in the system.

#### **8.1.1.2 HOD MVM Trade**

The analysis of the MVMT HOD’s comments produced one category, a government-companies-banks-international philanthropic organisations partnership.

This is exemplified in his comment:

*The stakeholders I want is government, companies (Shell).... I want banks, like World Bank, international philanthropic organisations. (HOD MVMT, 2016)*

Evident in the comment above is the need for the government, companies, banks and international philanthropic organisation to collaborate in order to strengthen the existing partnership.

#### **8.1.1.3 Teacher EIM Trade**

Analysis of the comment from the EIM trade Teacher signaled one stakeholder category viz, a school (technical principals and HODs)-company-government partnership.

The above listed stakeholders are outlined in the excerpt below:

*Technical principals should be there, HODs in technical schools as a body should be there. Companies should be there, so that they will now contribute meaningfully, like artisans on the road roadside mechanics, like electricians, government should come in, these are the people I think can come together and teach technical oriented*

In the next section, I present findings from the analysis of the industry employer’s comment.

## **8.1.2 Industry Employer**

There were two industry employers that took part in the intervention programme, one from the automobile industry, whilst the other is from the electrical industry. However, only the automobile industry employer was present at the first meeting, so the analysis is based on the automobile industry employer's comments.

### **8.1.2.1 Automobile Industry Employer**

Findings from the analysis of the Automobile industry employer's comment signaled one stakeholder category, a government-school-industry partnership.

The comments below justify the findings above:

*The government should partner with the school and our industry... (AIE, 2016)*

From the comment above, one can simply conclude that the AIE's perspective of the strengthening the existing partnership implies a collaboration between the government, school and industry.

I turn my attention to the analysis of the comments made by the two government representatives, namely RSSSB and SEEFOR.

## **8.1.3 Government Representatives**

### **8.1.3.1 Rivers State Secondary Schools Board (RSSSB) Representative**

A multi-stakeholder category was produced from the findings of the analysis of the schools' board representative. This category includes an employer of labour (industry)-government-community-PTA-NGOs partnership.

This is supported by the comment below:

*the employers of labour,(industry) the people that will employ them, they can provide the partnership because they know what they need when they graduate, so that when they come out from school, they are going to be employable, ... government can actually form part of the stakeholders... community can actually form part of the stakeholders, they can provide a place for government to build, and also try to safeguard, try to protect all what government has provided so that students can make maximum use of them, that is the way communities can come in .... Parents Teachers*

*Association (PTA)... can come in and make sure that things are properly utilized in the schools, what government has provided, some being provided by the school authority, Non-governmental agencies can play a role, though I can't lay hold of any now.... (RSSSSB Rep, 2016)*

As illustrated in the comment above, to strengthen the existing partnership according to the representative of RSSSB, there is need for collaboration between the employer of labour, government, community, PTA and NGAs. The respondent stated that the ideal situation will be the involvement of employers of labour (industry), that they are in better position to provide the needed partnerships since they are the people that employ them. In addition, he believes the community can provide a place for the government to build infrastructure for the school and to also ensure the protection of whatever the government has built for the full utilization of the programme; whilst the PTA will do more of monitoring, to ensure that what government has provided is properly utilized.

#### **8.1.3.2 State Employment and Expenditure for Results (SEEFOR) Representative**

The SEEFOR representative's comments proposed a three-stakeholder category, a company-government-community partnership.

These stakeholders listed above are evident in the comment below

*The oil companies, companies around the school like Coca Cola, Shlumberger, Intel, who are into welding. These are the type of companies we need...LNG can come in, Government too, so they can improve the infrastructure and employment of technical staff, the role of the company, they will expose the students to the modern equipment which they are using in the company, because you know if company employ you, they have to train you to get used to their equipment. If before the equipment, the students are exposed, this problem of training them after employment will be reduced, and we equally train the students along the same line of modern equipment...you know companies are dynamic now, modern equipment in production...the community can come in, if they come in, they can encourage their children, and give protection to the equipment in the school... (SEEFOR Rep, 2016).*

To strengthen the existing partnership, according to the participant, there is a need for collaboration between companies, government and community. The SEEFOR representative stressed further the type of company needed to form these partnerships as companies that are specialized in welding. He also described the role of the government in such partnerships as that of improving the infrastructural facilities and the employment of technical staff. Besides, the SEEFOR representative remarked that the involvement of the companies will avail students of the opportunity to be exposed to modern equipment, thereby reducing the cost of retraining these students upon employment after graduation.

Table 8. 1: Summary of findings from participating stakeholders from pre-intervention minutes of meeting

<b>PRE-INTERVENTION MINUTES</b>		
<b>SN</b>	<b>PARTICIPANTS</b>	<b>STAKEHOLDER CATEGORY</b>
1	HOD MVMT	Government-Company (Industry)-World Bank (Int'l Fin. Organ)
2	TEIMT (Teacher)	School (Tech Principals & HODs)-Comp-Government
3	TCP	NBTE-Company (Industry)-School-Government
4	AIE	Government-School-Industry
5	RSSSB	Emp. of lab-Government-Community-PTA-Non-Government agencies
6	SEEFOR	Comp (Industry)-Government-Community

As illustrated in Table 8.1 above, it is evident that all six participants namely: the principal, schools board representative, HOD MVM trade, teacher Electrical trade, automobile industry employer and the SEEFOR representative share the same view that the government and industry should form part of the stakeholders needed to strengthen the existing partnerships. However, in addition, three amongst the six participants – the principal, teacher of Electrical Installation and Maintenance trade and the automobile employer – all share similar opinions on the school as being part of the team. On the other hand, two amongst the six participants, the SEEFOR and RSSSSB representatives further believe that the community should form part of the collaboration.

In the following section, I present the analysis of data collected from personal interviews.

## **8.2 INSTRUMENT 2 – PERSONAL INTERVIEW**

A total of four personal interviews were held with both TVET trainers and industry employers – two from the College (EIMT and MVMT), and two from industry (Electrical and Automobile).

- **TVET Trainers**

Two TVET trainers participated in the implementation of the intervention programme: the Head of Department Motor Vehicle Mechanics Trade (HOD MVMT) and the teacher, Electrical Installation and Maintenance Trade (TEIMT).

- **Industry Employers**

Two industry employers took part during the implementation of the intervention programme: the automobile industry employer (AIE) and the electrical industry employer (EIE).

In the next section, I begin with the presentation of findings from TVET teachers followed by industry employers.

### **8.2.1 TVET Trainers**

In this section, the presentation is made according to the analysis of personal interviews held with two TVET trainers, HOD MVMT and TEIMT.

#### **8.2.1.1 HOD MVMT**

The analysis from the personal interview held with the HOD MVMT highlighted a multiple stakeholder partnership, a government-parents-industry-school-students-curriculum developers' partnership.

The HOD MVMT was of the view that strengthening the existing partnership demands a collaboration amongst the five stakeholders listed above. This is evident in the comments below.

*.... all hands must be on deck, the government will play their role, the parents will play their own role ...the industry can play role.... the school administrators, teachers and the students themselves.....including the curriculum developers... (HOD MVMT, 2016)*



As indicated by the HOD MVM Trade in the excerpt above, strengthening the existing partnerships will mean a form of collaboration between the government, parents, industry, school, students, and curriculum developers. It is also stressed that all five stakeholders need to be actively involved as each of them has a specific responsibility to undertake.

#### **8.2.1.2 TEIMT**

Findings from the analysis of the personal interview with the TEIMT produced a multi-stakeholder theme which includes a government-workshop owners (companies)-heads of TCs-(NGOs)-volunteers-parents partnership.

The above listed stakeholder category is justified in the comment below:

*Eem.... I think eeh... government ...those who are having workshops, like electrical workshops can come in... the heads of technical colleges have a lot to do too... even the parents, ... Non-governmental organisations... volunteers, that is, those well-to-do men can also contribute by donating technical books to enrich our library ... (TEIMT, 2016)*

From the excerpts above, it can be seen that both TVET teachers are of the same view that strengthening the existing partnership calls for collaboration amongst the government, school, industry and the parents. However, the HOD MVMT stressed active participation of all stakeholders concerned as seen in his comment, “*all hands must be on deck.*” For the school, there are variations with the description from both teachers. The Motor Vehicle Trade teacher described the school in terms of component-administrators, teachers, and students, whilst the Electrical Installation and Maintenance Trade teacher described the school in terms of the heads of technical colleges, which implies the principals. He also described industry with the term “*private workshop owners*” which could imply small scale industry. However, there were areas of diverse opinion on other stakeholder involvement amongst the two teachers.

From the excerpts, it can be seen that both trainers share similar views that strengthening the existing partnerships will mean collaboration with the school and its components, industry, government and parents. However, for the HOD MVMT, strengthening the existing partnership means the inclusion of curriculum developers, while for the TEIMT, partners such as non-governmental organisations and volunteers are needed so they can assist in donating books to the college library.

The next section presents the analysis of individual interviews from industry employers.

## **8.2.2 Industry Employers**

Two industry employers were involved in the intervention programme, the automobile industry employer (AIE) and the electrical industry employer (EIE).

I will present the analysis with the automobile employer first, followed by the electrical employer.

### **8.2.2.1 Automobile Industry Employer (AIE)**

Findings from the analysis of the personal interview held with the automobile industry employer signposted a three-stakeholder category, a school-industry-government partnership. According to the AIE, the above listed three stakeholders are needed to strengthen the existing partnership. This is corroborated in the excerpts below.

*...the persons that are to come in are the school and the industry first, then from there, the school and the industry will now extend it to the government. (AIE, 2016)*

### **8.2.2.2 Electrical Industry Employer (EIE)**

On the other hand, findings from the analysis of findings from the interview conducted with the EIE revealed the following multi-stakeholder category, a school-industry-educational body partnership.

This he justified in the comment below:

*.... board should be constituted...people that will constitute the board are members of the school which are the teachers, captain of industries and technocrats from companies... the next thing you need to do is to ensure that captain of industries, teachers that will reach out to the students directly, group of contractors should come together, they will actually state what is required in this syllabus, the only role we have is to let out the information we have ...within the industry, the equipment that is involved, make it known to the school authority, the educational body so they can form their own curriculum in line with that because the theory they teach them there actually are no more in line with what we do in the industry....(EIE, 2016).*

From the analysis of the excerpts above, it is obvious that both industry employers hold the same views on the number of stakeholders needed to strengthen the existing partnership and on the involvement of the school and industry as part of the collaboration team. On the other hand, the AIE further named the government as the third stakeholder needed, whilst for the EIE, the educational body that designs the curriculum is considered the best additional partner. The EIE described the role of industry as informing and introducing to the curriculum planners the latest technology in use, to plan a market responsive curriculum that will produce employable technical college graduates. The implication of this is that curriculum planning should be a collaborative process that involves the teachers and others within the TVET community.

Table 8. 2: Summary of findings from participating stakeholders from personal interviews

PERSONAL INTERVIEWS		
SN	PARTICIPANTS	STAKEHOLDER CATEGORY
1	HOD MVMT	Government-Parents-Industry-School-Curr. Developers.
2	TEIMT (Teacher)	Government-W/shop owners (Private industry)-Heads of technical colleges-Non-Governmental Organisations-Volunteers-Parents
3	AIE	School-Industry-Government
4	EIE	School-Industry-Educational Body

As illustrated in Table 8.2 above, all four participating community stakeholders hold similar views that strengthening the existing partnerships means collaboration between academia, industry and government. For the HOD MVMT, there is an inclusion of curriculum developers, which is also an arm of the government, whilst for the EIE, the government is represented by its educational body. Furthermore, both TVET trainers share same views on parents constituting one of the stakeholders needed for strengthening the existing partnerships. However, the TEIMT had the opinion that such partners as non-governmental organisations and volunteers are needed so they can assist in donating books to the college library.

In the next section, I present the analysis of focus group discussions. As mentioned earlier, four focus group discussions were held, I begin the section with the first, followed the second, third and the last.

### 8.3 INSTRUMENT 3 - FOCUS GROUPS

Four focus group discussions were held as follows:

- Focus group 1: HOD MVMT with automobile industry employer
- Focus group 2: MVM trade students
- Focus group 3: TEIMT with electrical industry employer
- Focus group 4: EIM trade students

As listed above, the first focus group discussion was held between the MVM trade HOD and the AIE. Findings of the analysis with the HOD MVMT is presented first, followed by the AIE.

#### 8.3.1 Focus Group 1: HOD MVMT with Automobile Industry Employer

Findings from the analysis of focus group discussion with the MVMT HOD highlighted a multi-stakeholder category, that of government-companies-parents (PTA)-students partnership.

According to the MVM trade HOD, the above listed stakeholders need to collaborate in order to strengthen the existing partnership, for REE TVET provision in Nigerian technical colleges:

*.... the government has a very big role to play... there should be adequate funding, they should give good incentives to teachers, technical instructors, school heads, administrators and others.... provide materials.... and government also should make sure they send people from time-to-time to send people to overseas to checkmate or supervise this equipment that are brought and used by students.... companies can equally make adverts in the sense that sometimes they do come here, that they need some people for industrial attachment. we do send them; the students go for industrial training. companies can send materials, equipment, can as well absorb our products at the end of their programme.... parents should also, they have financial contribution, like the PTA (parents' teachers' association) they can say .... eeh this department lack so so thing, parent body can contribute and provide little things in that department...so, the students themselves must be ready to learn, they have to constitute themselves to the level that at any point in time, they should be ready to learn. (HOD MVMT, 2016)*

Similar to the excerpt above, the analysis of the automobile industry employer's comment revealed another multi-stakeholder category, a government-company-parents partnership.

*The government is the first, by incorporating it (a scan tool) into the curriculum, the second is.... providing the facilities complete... then in a situation the government fails to provide those things, then the companies can now help, and the parents of the children can now help, providing scan tool government should sponsor the training. (AIE, 2016)*

Both the MVM trade teacher and the AIE were of the same view that strengthening the existing partnership demands active interaction between the government, companies (industry) and parents, in providing the needed resources for effective technical college programme. For the MVM trade HOD, the effectiveness of the technical college programme lies on the ability of the government to make provision for adequate funds, payment of incentive to school administrators and trainers, and the periodic monitoring of the equipment in use in the colleges. In furtherance to that, he described the role of the companies as that of accepting the students for industrial attachment and the provision of training materials and equipment. On the other hand, the parents, through the parents' teachers' association (PTA), can make some financial commitment to aid the running of the department. In describing the roles of these stakeholders, the automobile industry employer remarked that, first, the government will have to review the curriculum to include the use of scan tools for teaching and learning in the MVM trade, and also to make the facilities available. Describing the roles of the companies and parents, he stated that the company and parents can only collaborate with the parents in providing this facility if the government fails to do so. However, the MVM trade HOD further stressed that the success of these partnership depends on the willingness and readiness of the students to learn. For the AIE, the government needs to review the curriculum to make these changes, however, he stressed that in a situation where the government fails in its responsibility to provide these facilities, then the company in collaboration with the parents will provide these facilities while government will sponsor the training.

In the next section, I present an analysis of focus group 2 with MVM trade students.

### **8.3.2 Focus Group 2: MVM Trade Students**

This focus group discussion involved six Motor Vehicle Mechanics trade students (MVMTS), but only three talked to the issue of stakeholders needed to strengthen the existing

partnerships. The implication is that this analysis is based on the comments of these three students.

The analysis of the focus group discussion held with the MVM trade students revealed the first MVMT multi-stakeholder partnership, a school-government-philanthropic individuals partnership.

This is justified in the comment below

*... also, the individual that shall bring support like the principal, the school authority The government should also help and put hands in it... government should as in, invest more because this is the hope of the nation... they should put more force and money in this school... individual should help, those people that are well enhanced in money, they should support. (MVMTS 1, 2016)*

The analysis of the second student's comment produced a two-stakeholder category namely, a student-World Bank partnership.

This he expressed in the excerpt below:

*... I think the students, they should try, like when they say we should pay for practical, we should volunteer...I think the World Bank too! Like the World Bank has helped us a lot... (MVMTS 2, 2016)*

The last student who responded had the analysis of his comment produce a teachers-students partnership.

*I think the teachers, the teachers because if they are not able to teach us, we the students cannot learn. (MVMTS 3, 2016)*

As can be seen in the excerpts above, the three students that commented all named the school as a major stakeholder required to strengthen the existing partnership. There are variations in their various comments; MVMTS 1 listed the principal, and the entire school authority, while for MVMTS 2, the school in terms of students, whilst for MVMTS 3, the school is considered as teachers and students. MVMTS 2 further stressed that students should show their willingness to learn by making voluntary contribution by making payment for their practical, while for MVMTS 3 the success of their learning exercise depends on the ability of the teacher to teach and the students to learn. Conversely, MVMTS 1 further stressed the

involvement of the government and philanthropic individuals as part of stakeholders needed, in funding technical college programme, at the same time MVMTS 2 was of the view that the World Bank should be part of the team, considering the extent of assistance they had rendered so far to the college.

The next section presents the analysis of focus group 3.

### **8.3.3 Focus Group 3: TEIMT and Electrical Industry Employer**

This group comprised two participants, namely the TEIMTT and EIE.

The analysis of the focus group discussion held with the TEIMT highlighted a multi-stakeholder category, an NGO-company-government-school partnership.

The above listed stakeholders are illustrated in the comments below.

*.... non-governmental agencies, like Engineer West and Groups, Company eeh... they can come, liaise with the government, ... there are groups of men that work together like a team for an example installation eeh.... you may be an electrician specialised in wiring.... if government knows that we have such group of men, they can co-opt them into the training, and make sure that these things are enshrined into the curriculum, it will help us (school). (TEIMT, 2016)*

Strengthening the existing partnership, according to the TEIMT, means a collaboration amongst NGOs, companies, government and school. According to the teacher, there is need for the government to work in partnership with industries, by making it part of its policy (curriculum).

The EIE produced a multi-stakeholder category, a teachers-students-industry-government partnership. This he justified in the comment outlined below;

*The board are made up of members which are humans or stakeholders ...should be made of professional teachers, captain of industries, and some technocrats from companies... The function of captain of industries is to introduce new methodologies being involved in the equipment that is available to enhance the teachers in that aspect, the teachers do not have the ideas... The place of government factually in all this is to provide,*

*basically equipment. they know how to source their fund and provide, it will give them room for research and studies ... infrastructural facilities, ...the idea we from the industry is going to bring is nothing more than to expose, send out information needed to the teachers which are directly involved on day-to-day planning with the students, the teachers will also give us their experience and difficulties. (EIE, 2016)*

From the EIE's comment above, strengthening the existing partnership implies a collaboration between professional teachers and students, industry and government. According to him, industry has the onus of furnishing the college with information on modern technologies, whilst the responsibility of the government is basically to provide equipment, funds and infrastructural facilities to aid the effective implementation of the technical college programme.

Considering the two excerpts above, both the electrical trade teacher and the electrical employer were of similar view that industry and school should form a synergy to strengthen the existing partnership. However, whilst the TEIMT regarded the school in its entirety, the EIE differed in the way he described the school. To him, the school is seen as teachers and students. Conversely, both the TEIMT and EIE have different views on the involvement of two different stakeholders, the TEIMT listed NGOs as part of the stakeholders needed, while for the EIE, the government was preferred.

In the next section, I present the analysis of focus group discussion four with Electrical Installation and Maintenance trade students.

#### **8.3.4 Focus Group 4: EIM Trade Students**

Analysis at this stage involves six Electrical Installation and Maintenance Trade students (EIMTS), but only one commented on the needed stakeholders. This student produced a four-stakeholder category, a government-teachers-students-philanthropic individual partnership.

These stakeholders listed above are expressed in his comments below.

*.... I think the government should collide (collaborate) with our teachers in order to empower us; because, if they should provide all that is needed, then our teachers will likewise give it to us. Even individuals outside there, if there are people that will likely sponsor the students, they are also welcome, they can as well help (EIMTS 1, 2016)*



According to him, there is a need for the government to collaborate with the teachers and other well-meaning individuals to strengthen the programme for the betterment of the students.

Table 8. 3: Summary of findings from participating stakeholders from focus group discussions

FOCUS GROUP DISCUSSIONS		
SN	PARTICIPANTS	STAKEHOLDER CATEGORY
1	HOD MVMT	Government-Company (Industry)-PTA-Students
2	TEIMT (Teacher)	NGOs- Company (Industry)-Government-School
3	MVMTS 1	School-Government-philanthropic individuals
4	MVMTS 2	Students-World Bank
5	MVMTS 3	Teacher-Student
6	EIMTS 1	Government-Teacher-Student- philanthropic individuals
7	AIE	Government- Company (Industry)-Parents
8	EIE	Teacher-Student-Industry-Government

As illustrated in Table 8.3 above, six out of the eight participating community members have common views that the school (teachers and students) should form part of the stakeholders needed to strengthen the existing partnerships. On the other hand, the two trainers and employers agree on industry and government being part of such partnership. In addition, the HOD MVMT and AIE are of the view that parents through the PTA should form part of the collaborations needed for strengthening. Similarly, MVMTS 1 and EIMTS 1 also have common opinion on the involvement of philanthropic individuals. However, the TEIMT and MVMTS 2 were of different opinion that there is a need to include the non-governmental organisations and World Bank (international financing community) respectively.

In the next section, I present the analysis from the post-intervention minutes.

#### 8.4 POST INTERVENTION MEETING

This section presents the analysis and results of findings from minutes of meeting with six TVET stakeholders namely:

##### GOVERNMENT TECHNICAL COLLEGE

- Technical college principal (TCP)
- Head of Department, Motor Vehicle Mechanics Trade (HOD MVMT)

- Teacher, Electrical Installation and Maintenance Trade (TEIMT)

## **INDUSTRY**

- Director Mic Vitto Vehicle Lab (Automobile Industry Employer) (AIE)

## **GOVERNMENT**

- Deputy Director (Projects) Rivers State Senior Secondary Schools Board (RSSSSB)
- State Employment and Expenditure for Results (SEEFOR)

This section presents the analysis of the post-*intervention* meeting minutes of participants' (stakeholders') views on how to strengthen the existing partnerships. In this section, I begin the analysis with the school, followed by industry, whilst I conclude with the government.

### **8.4.1 Government Technical College**

The school was represented by three participants, namely the principal, HOD MVM and Teacher EIM trades. The analysis is presented in the same order, with the principal first.

#### **8.4.1.1 Principal**

Analysis of the principal's comment highlighted a multi-stakeholder category namely, a parents-government-companies-private workshop owners partnership.

The above listed stakeholder category is justified in the comment below;

*Parents, government, companies, and private workshop owners should assist in empowering the students and also provide or donate textbooks for them. (TCP, 2016)*

As can be seen in the excerpt above, the principal's view of stakeholders needed to strengthen the existing partnership includes the parents, government, companies and private workshop owners. He further stressed on that collaboration amongst these stakeholders should be directed towards empowering the students and to also provide them with reading materials.

#### **8.4.1.2 Head of Department Motor Vehicle Mechanics Trade (HOD MVMT)**

Findings from the analysis of comment from the HOD MVMT highlighted a multi-stakeholder category namely, parents-employers of labour (industry)-school-teachers partnership.

The above listed stakeholder category is supported by this comment:

*By reaching out to parents through informative media or through parent/teachers' meetings, by involving employers of labour (industry), by involving school authorities and teachers... (HOD MVMT, 2016)*

As illustrated in the comment above, it is possible to conclude that the view of the MVMT HOD of strengthening the existing partnership can be achieved through a multi-stakeholder collaboration involving parents, employers of labour, and teachers.

#### **8.4.1.3 Teacher Electrical Installation and Maintenance Trade (TEIMT)**

Analysis at this stage produced a three stakeholders' category namely, a company [private workshops] (industry)-technical colleges-government partnership:

*Companies (industry), technical colleges, private workshops and government should join their hands and make sure that students are provided with teaching equipment, training materials and make learning environment conducive (TEIMT, 2016)*

From the excerpt above, it can be concluded that the EIMT is of the view that companies, technical colleges and the government should form a collaboration, in order to strengthen the existing partnerships. This, he argued, is to ensure the effective provision of teaching equipment, training materials, and a conducive teaching and learning environment.

In the next section, I present the analysis of industry employers' comments.

#### **8.4.2 Industry Employers**

At this stage, both industry employers were present, so the analysis is based on the two employers' comments. I begin with the automobile industry employer (AIE), and conclude with the electrical industry employer.

##### **8.4.2.1 Automobile Industry Employer (AIE)**

Analysis of the findings from the AIE's comment highlighted a multi-stakeholder category namely, a government-schools-industry partnership:

*The government should partner with the schools to make studying with computer devices very effective in technical schools. On the other hand, technical schools should partner with training industries like our*

*company to introduce computerised training to the students before fronting it to the government for implementation into the curriculum syllabus. (AIE, 2016)*

As illustrated in the excerpt above, it is obvious from the AIE's perspective that to strengthen the existing partnership will mean forming a collaboration between the government, school and industry. However, he stressed that the government should partner with technical schools to ensure that studying with computerised devices is effective. Furthermore, he emphasised a partnership with industry, such as introducing computerised training to technical college students before it can be proposed to the government, so it will be made a policy.

#### **8.4.2.2 Electrical Industry Employer (EIE)**

Analysis of the findings of the EIE's comment indicated a three-stakeholder category, namely a private sector-NBTE-industries partnership.

The stakeholders listed above are emphasised in the excerpt below:

*Partnership model should be sustained with the aid of the private sectors and NBTE to enhance information, and model which will prepare the graduands for immediate employment or self-employed. However, there should be quarter or annual meetings for update, upgrade between NBTE members, captain of industries and technocrats. This will be a sustainable partnership model (EIE, 2016).*

From the comment above, partnership between the private sectors, NBTE and industry will strengthen the existing partnership. He however, stressed that this partnership, if sustained, will prepare graduate to be employable and be self-dependent. In addition, he further remarked that the sustainability of this partnership depends on periodic meetings and upgrade of information.

I now turn to the analysis of comments from government representatives.

### **8.4.3 Government Representatives**

#### **8.4.3.1 RSSSB**

The comment by the RSSSB represented identified a multi-stakeholder category, namely, a government-private sector-community partnership:

*TVET in technical colleges can only be strengthened when the government partners with private sector and the community*

From the comment above, it can be deduced that the effectiveness of technical college programme depends on the strengthened collaboration between the government, private sectors and the community.

#### **8.4.3.2 SEEFOR**

Findings from the analysis of the comment of the SEEFOR representative revealed a three-stakeholder category, a government-private sector-NGOs partnership

*Government should encourage partnership with the private sector and non-governmental organisations (SEEFOR Rep, 2016)*

As can be seen in the excerpt above, the SEEFOR recommends collaboration amongst the government, private sectors and NGOs in order to strengthen the existing partnership.

The analysis of the post-intervention minute, as illustrated in Table 8.4 below, indicates that all seven participating community members share similar views that industry is the key stakeholder needed to strengthen the existing partnerships, although there were variations in the various descriptions of industry by the community members. To the HOD MVMT, industry is seen as the employer of labour, whilst to the TEIMT and TCP, it is considered company and private workshop owners. On the other hand, the two representatives from government see industry as private sector employers. Furthermore, six out of the seven participating community members hold the view that the government should form part of the collaborating partners required to strengthen the existing partnership. These include TEIMT, TCP, AIE, RSSSB, and SEEFOR. For the principal and the HOD MVMT, there is an agreement on the involvement of parents as part of stakeholders needed in the collaboration to strengthen the existing partnership for REE TVET provision in Nigerian technical colleges. Besides, there were areas where participants had diverse views, for example, the HOD MVMT is of the view that involving the teachers is ideal, whilst to RSSSB and SEEFOR it should include community and non-governmental organisations respectively.

Table 8. 4: Summary of findings from participating stakeholders from post-intervention minutes

POST-INTERVENTION –MINUTES		
SN	PARTICIPANTS	STAKEHOLDER CATEGORY
1	HOD MVMT	Parents-Employers of labour (Industry)-School-Teacher
2	TEIMT (Teacher)	Company [Priv W/shops (Industry)]-technical colleges-Government
3	TCP	Parents-Government-Company (Industry)-Private workshop owners (industry)
4	AIE	Government-School-Industry
5	EIE	Private sectors (Industry)-National Board for Technical Education-Industry
6	RSSSB	Government-Private Sector (industry)-Community
7	SEEFOR	Government-Private sector (Industry)-Non-Government Organisations

## 8.5 SUMMARY OF FINDINGS

This section presents stakeholders categories needed to strengthen the existing partnerships as raised by participating community members. In Chapter 6, the summary of findings showed that partnership only existed between two stakeholders, technical colleges-SEEFOR (Government), and Technical College-World Bank (IFC). This type of partnership arrangement is not in line with the propositions of the Triple Helix theory of academia, industry and government relations. This partnership arrangement was seen with either of the five different stakeholders, namely Government, World Bank (international financing community), Parents Teachers Association (PTA), and philanthropic individuals. However, after engaging with the community participating stakeholders, strengthening the existing partnerships revealed technical college collaboration with the industry, government and other stakeholders. That is, conforming with the Triple Helix theory alongside other stakeholders in a single partnership category. For example, strengthening the existing partnerships as revealed from the analysis above means collaboration between technical colleges, industry (different categories), Government (its agencies), NGOs, World Bank (IFC), community, PTA, philanthropic individuals, and volunteers.

Table 8. 5: Summary of categories of partnerships across all four instruments

STAKEHOLDER COMMUNITY	PARTICIPANTS	PRE-INTERVENTION MINUTES	PERSONAL INTERVIEWS	FOCUS GROUP	POST-INTERVENTION -MINUTES
Academia	HOD MVMT	Govt-Comp-World Bank (Int'l Fin. Com)	Govt-Par-Ind-Sch-Curr. Dev.	Govt-Comp-PTA-Students	Parents-Emp. Of lab-Sch-Teach
	TEIMT (Teacher)	Sch (Tech Principals & HODs)-Comp-Govt	Govt-W/shop owners (Comp)-Heads of TCs-(NGOs)-Volunteers-Par	NGOs-Comp-Govt-Sch	Comp (Priv W/shops)-TCs-Govt
	TCP	NBTE-Company-Sch-Govt			Par-Govt-Comp-Priv workshop owners
	MVMTS 1			Sch-Govt-Phil Indiv	
	MVMTS 2			Stud-World Bank	
	MVMTS 3			Teach-Stud	
Industry	EIMTS 1			Govt-Teach-Stud-Phil Indiv	
	AIE	Govt-Sch-Industry	Sch-Ind-Govt	Govt-Comp-Parents	Govt-Sch-Ind
	EIE		Sch-Ind-Edu body	Teach-Stud-Ind-Govt	Priv sectors-NBTE-Ind
Government	RSSSB	Emp. of lab-Govt-Comm-PTA-Non-Govt agencies			Govt-Priv Sector-Comm.
	SEEFOR	Comp-Govt-Comm			Govt-Private sector-NGOs

From Table 8.5 above presented above, it is significant to note that there are 15 different partnership categories that emerged from the four instruments used. Furthermore, as illustrated in Table 8.5 above, it is indicative that from the academia and industry stakeholder community, much value is placed on the academia-industry-government partnership alongside other stakeholders, whilst this is conspicuously not considered from the government stakeholders. Considering the overall analysis across all instruments as presented in Table 8.5 above, strengthening the existing partnerships depends on collaboration between academia (its components), industry (different levels), government (its boards and agencies) and other stakeholders. Another thing worthy of note is that whilst the government lacks the knowledge on the importance of collaborative technical college programme planning, academia and

industry being at opposite ends, trainers and employers respectively acknowledge the need for collaboration amongst these stakeholders for REE TVET provision in Government College, Port Harcourt.

## **8.6 CONCLUSION**

This chapter presented the views of community stakeholders from academia, industry and government on how to strengthen the existing partnership in GTC, Port Harcourt. In all, 15 different partnership categories were raised. Stakeholders in these categories of partnerships include academia, industry (formal and informal), government, and non-governmental organisations (NGOs). Others include the community, Parents Teachers Association (PTA), the international financing community such as the World Bank, philanthropic individuals/organisations and volunteers. The results from the analysis of community stakeholders as shown across the four instruments revealed that the technical colleges in collaboration with industry, government and other stakeholders will go a long way to strengthening the existing partnerships.

In the next chapter, a theorisation will be presented on how CBPAR will be used in the development of a sustainable REE model in the provision of TVET in Port Harcourt Government Technical College.



## **CHAPTER 9**

### **THE MAIN STUDY - PHASE 2**

#### **USING CBPAR TO UNDERSTAND HOW TO DEVELOP A NEW MODEL OF PARTNERSHIP IN TVET PROVISION – POST-INTERVENTION**

Chapter Eight presented an analysis of community members' views of stakeholders needed to strengthen the existing partnerships for REE TVET provision in GTC, Port Harcourt. This chapter directly addresses research question two in Phase 2 of the main study, by asking the question:

- *Using CBPAR, how do we develop a sustainable REE model of partnership in TVET provision in Government technical college, Port Harcourt?*

In this regard, this chapter focuses on the last cycle of the CBPAR model as presented below:

- vi) Engaging with stakeholders;
- vii) Planning and designing of intervention programme;
- viii) Implementing the intervention programme;
- ix) Collection and analysis of data, and
- x) Reporting of findings (Burns, Cooke, & Schweidler, 2011, pp. 11-13)

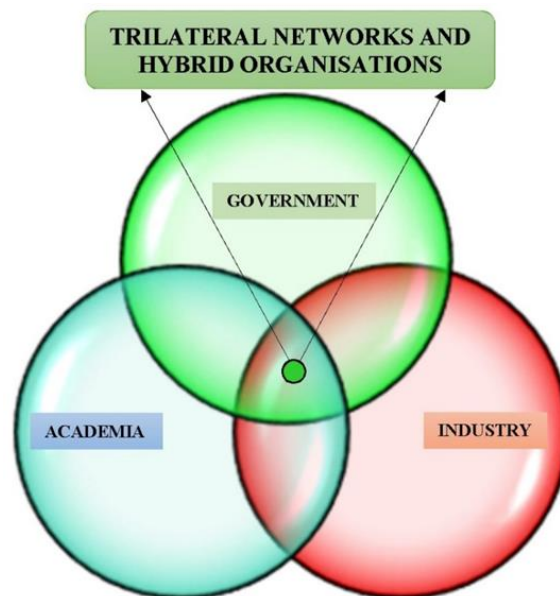
The aim of this chapter is to theorise about the development of a sustainable REE model in the provision of TVET in Port Harcourt Government technical college. To achieve this, the theoretical frameworks adopted in the study were used to make sense of the findings from the different phases of the main study.

This chapter is thus divided into four main sections, namely, section 9.1, which presents a brief background on the two theoretical frameworks used in the study. The purpose of presenting a brief background on the theoretical frameworks, is to remind and refresh our minds on the major components and advocacies of these theories as presented in chapter two. Sections 9.2 to 9.3, look at the application of the frame works in the analyses of findings in Phases 1

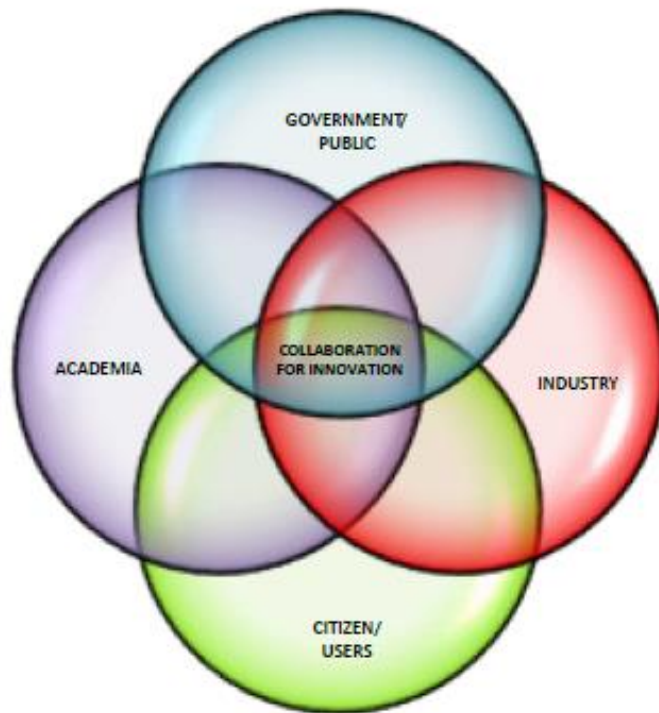
and 2 of the main study. The chapter concludes with Section 9.4, which briefly summarizes the results presented in this chapter.

### 9.1 THE TWO THEORETICAL FRAMEWORKS EMPLOYED IN THE STUDY

The two theoretical frameworks employed in the study include the Triple Helix model and the Quadruple Helix Innovation model. The THM advocates collaboration between academia, industry and government to stimulate innovation, whilst on the other hand, the QHIM promotes collaboration between four different institutions: academia, industry, government and user spheres, to drive and sustain innovation. As mentioned earlier, the Triple Helix model accommodates collaborations between academia, industry and government, whilst the Quadruple Helix Innovation further includes the fourth sphere known as the users. As mentioned earlier in Chapter 2, the THM in the literature has all its three spheres described as a block entity, whilst for the QHIM, there are component descriptions of all four spheres. The institutional spheres of both models are presented below as depicted in Figure 9.1 and 9.2 with the THM being constituted by the first three spheres, and QHIM including the fourth respectively.



**Figure 9. 1: Triple Helix Model of University–Industry–Government Relations**  
(Etzkowitz & Leydesdorff, 2000)



**Figure 9. 2: Quadruple Helix Innovation Model**

(Carayannis & Grigoroudis, 2016, p. 37)

- Academia:** The education system referred to as academia, universities, higher education institutions, and schools (human capital)
- Industry:** The economic system consisting of industry/industries, firm, services, and banks (economic capital).
- Government:** This formulates the direction in which the state/country is heading in the present and future, as well as the laws [usually government] (political and legal capital).
- Civil society/Users:** This is described as media based which integrates and combines two forms of capital: culture-based public-tradition, values etc. (social capital) and media-based public-television, internet, newspapers (capital of information).

As mentioned earlier, both frameworks were used in the study. Analytically, the QHIM is broader than the THM and thus can be applied in research which focuses on elements beyond

the scope of the Triple Helix model. Kuhlmann (2001), commenting on ‘innovation cultures’, stresses that both the knowledge society and knowledge economy are driven by cultures and values. Hence, the need to incorporate the fourth sphere component – civil society/users as proposed by Carayannis and Campbell (2010).

## **9.2 TWO THEORETICAL FRAMEWORKS EMPLOYED FOR THE ANALYSIS OF PHASE 2 IN THE 4 GEOPOLITICAL ZONES SURVEYED**

The results from the analysis of the findings showed that in the first phase of the main study, amongst the five different partnership categories found in South-South, namely:

- GTC, Calabar-PTA
- GTC, Calabar-Philanthropic individuals
- GTC, Calabar-NDDC
- GTC, Irrua/PH-SEEFOR
- GTC, Irrua/PH-World Bank

Only two amongst the five partnership categories revealed above, namely GTC-NDDC and GTC-SEEFOR, conform to two of the three spheres in the THM, namely academia and government, whilst the remaining three revealed three different stakeholders from the users spheres of the QHIM, namely GTC-PTA, GTC-philanthropic individuals, and GTC-World Bank (IFC).

For North-Central, there were four different partnership categories:

- BSUSTC-PTA
- GTC, Bukuru-NBTE
- GTC, Bukuru-NABTEB
- GTC, Bukuru-SUBEB

From the four different partnership categories listed above, three seem to have two spheres of the THM, academia and government, represented as: GTC-NBTE; NABTEB; and SUBEB, whilst one demonstrates only two out of the four spheres in the QHIM, namely academia and users, represented as BSUSTC-PTA.

The findings for South-West revealed six different partnership categories:

- GTC, Owo-Elizade Motor
- GTC, Owo-Dulux Paint
- GTC, Owo-Nigerian Breweries

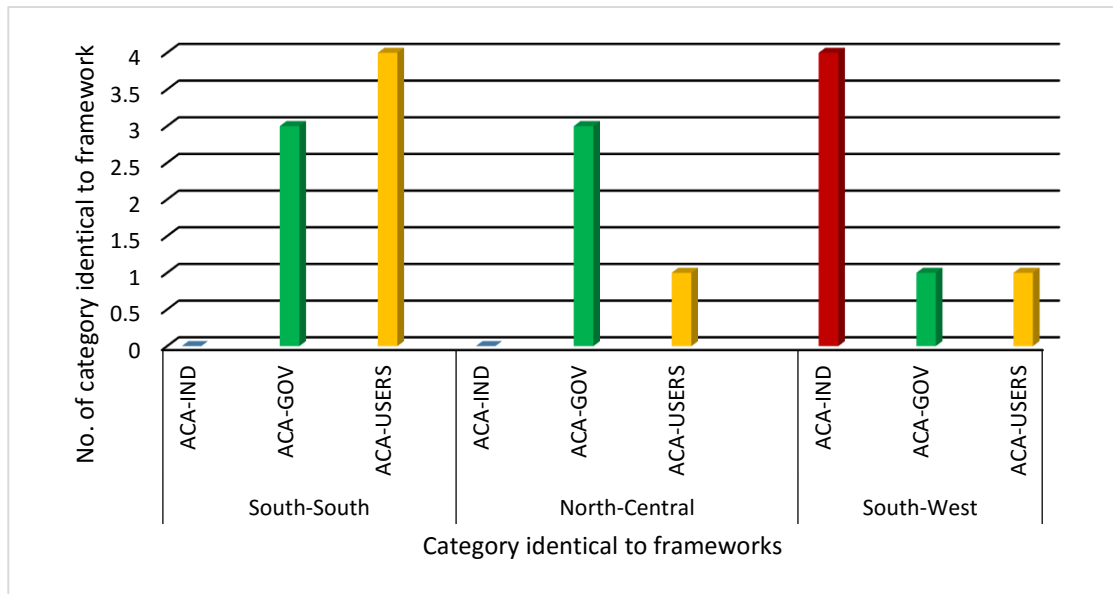
- GTC, Owo-Plantation industry
- FSTC, Yaba-ITF/NECA
- FSTC, Yaba-SWISS/UNIDO

In all six partnership categories listed above, five share features with two components of the THM, namely academia-industry for the first four, and academia-government for the remaining one. Only one category of partnership exhibited the feature of the user sphere in the QHIM, which is FSTC-SWISS/UNIDO, the remaining one partnership category.

A summary of the findings across the three zones as illustrated in TABLE 9.1 shows that there are only two of the spheres, from either the THM or QHIM, represented in all the partnership categories found, which ranges from ACA-IND, ACA-GOV, ACA-USERS. The result also shows that the industry stakeholders have representatives from different sectors such as automobile, paint, brewery, and agriculture, represented by Elizade Motors, Dulux Paint, Nigerian Breweries, and Plantation Industries respectively. Likewise, in some of the categories the Government stakeholder is represented by either its agency or Board, such as NDDC, SEEFOR, NBTE, NABTEB, SUBEB, and ITF/NECA. Similarly, there are four different stakeholders that fall within the users sphere of the QHIM, the PTA, philanthropic individuals, World Bank (IFC), and SWISS/UNIDO.

Table 9. 1: Nature of partnership categories across three geopolitical zones

ZONE	STATE	COLLEGES	TYPE OF PARTNERSHIP	FRAMEWORK CATEGORY			
				ACA-IND	ACA-GOV	ACA-USERS	
<b>South-South</b>	Cross	GTC, Calabar	GTC, Calabar-PTA			1	
	River		GTC, Calabar-Philanthropic individuals			1	
			GTC, Calabar-NDDC		1		
	Edo	GSTC, Irrua	GTC, Irrua-SEEFOR		1		
			GTC, Irrua-World Bank			1	
	Rivers	GTC, PH	GTC, PH-SEEFOR		1		
			GTC, PH-World Bank			1	
			<i>Total Category for South-South</i>	<i>0</i>	<i>3</i>	<i>4</i>	
	<b>North-Central</b>	Benue	BSUSTC	BSUSTC, Markurdi-PTA			1
		Plateau	GSTC, Bukuru	GTC, Bukuru-NBTE		1	
GTC, Bukuru-NABTEB					1		
GTC, Bukuru-SUBEB					1		
			<i>Total Category for South-South</i>	<i>0</i>	<i>3</i>	<i>1</i>	
<b>South-West</b>	Ondo	GTC, Owo	GTC, Owo-Elizade Motor	1			
			GTC, Owo-Dulux Paint	1			
			GTC, Owo-Nigerian Breweries	1			
			GTC, Owo-Plantation industry	1			
	Lagos	FSTC, Yaba	FSTC, Yaba-ITF/NECA		1		
			FSTC, Yaba-SWISS/UNIDO			1	
			<i>Total Category for South-South</i>	<i>4</i>	<i>1</i>	<i>1</i>	
Grand Total				4	7	6	



**Figure 9. 3: Chart showing partnership categories identical to frameworks across three geopolitical zones**

It is worth noting that, across the four geopolitical zones, in all the partnership categories found with technical colleges involved in partnerships in the first phase of the main study, none seem to mirror the complete spheres of either the THM or the QHIM, as illustrated in Figure 9.2 above. This implies that none of these institutions are in complete collaboration with either of the three or four stakeholders representing the THM and QHIM respectively. The result shows no industry representation for both South-South and North-Central. The only two categories of partnerships include ACA-GOV and ACA-GOV. For South-West, the result revealed three different categories, namely ACA-IND, ACA-GOV, and ACA-USERS.

### **9.3 THE TWO THEORETICAL FRAMEWORKS EMPLOYED FOR THE ANALYSIS OF PHASE 2 USING CBPAR**

In this section, the two theoretical frameworks employed in the study were used to interrogate the data generated in the literature review, pre and post-intervention programmes. As mentioned earlier, the frameworks include the Triple Helix theory and the Quadruple Helix Innovation model. Table 9.2 below presents an overview of the findings across all four domains, namely literature, theoretical framework, pre and post-intervention.

Table 9. 2: Stakeholder Partnership Categories across four domains

	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	15	17	18		19	20	21	22	23		
LIT REV	ACA-IND-GOV	ACA-IND	ACA-GOV	ACA-GOV-PHI	ACA-COMM-PTA	ACA-COMM	ACA-NGO	ACA-IFC	ACA-IND-PAR	AC-IND-GOV-PTA	ACA-IND-GOV-NGOs-PAR-VOL	ACA-IND-GOV-NGO		IND-GOV	IND-GOV-COM	IND-GOV-NGO	IND-GOV-IFC	IND-GOV-NGO-PTA	IND-GOV-PAR		GOV-NGO	GOV-COMM	GOV-FBO	GOV-PTA	GOV-TU	Categories covered	%
		ACA-IND					ACA-NGOs (local)							IND(IE)-GOV							GOV-NGO	GOV-CBO					
		ACA-IND (FE)					ACA-INGO (Int'l)														GOV-NGO	GOV-COMM					
		ACA-IND																									
SUB-TOTAL	1	4			1	1	2	1						1	1	1	0	0	0		2	2	1	1	1	15	65
TF	ACA-IND-GOV									ACA-IND-GOV-USERS	ACA-IND-GOV-USERS	ACA-IND-GOV-USERS															
SUB-TOTAL	1	0			0	0	0	0		1	1	1		0	0	0	0	0	0		0	0	0	0	0	1	4
PRE-INT	ACA-IND-GOV														IND-GOV-COM		IND-GOV-IFC	IND-GOV-NGO-PTA									
SUB-TOTAL	1	0			0	0	0	0	0	0	0	0		0	1	0	1	1	0		0	0	0	0	0	4	17
POST-INT	ACA-IND-GOV			ACA-GOV-PHI				ACA-IFC	ACA-IND-PAR	AC-IND-GOV-PTA	ACA-IND-GOV-NGOs-PAR-VOL	ACA-IND-GOV-NGO		IND-GOV	IND-GOV-COM	IND-GOV-NGO			IND-GOV-PAR								
																			IND-IND(IE)-GOV-PAR								
SUB-TOTAL	1	0	0	1	0	0		1	1	1	1	1		1	1	1	0	0	2		0	0	0	0	0	11	48
GRAND TOTAL	4	4	1	1	1	1	2	2	1	2	2	2		2	3	2	1	1	2		2	2	1	1	1	23	100



Table 9. 3: Partnership categories generated and their frequency across various domains

<b>Partnership Categories</b>	ACA-IND-GOV	ACA-IND	ACA-GOV	ACA-GOV-PHI	ACA-GOV-PTA	ACA-COMM	ACA-COMM-PTA	ACA-COMM	ACA-NGO	ACA-IFC	ACA-IND-PAR	ACA-IND-GOV-PTA	ACA-IND-GOV-NGOs-PAR-VOL	ACA-IND-GOV-NGO	IND-GOV	IND-GOV-COM	IND-GOV-NGO	IND-GOV-IFC	IND-GOV-NGO-PTA	IND-GOV-PAR	GOV-NGO	GOV-COMM	GOV-FBO	GOV-PTA	GOV-TU
<b>Frequency</b>	4	4	1	1	1	1	2	2	1	2	2	2	2	2	2	3	2	1	1	2	2	2	1	1	1

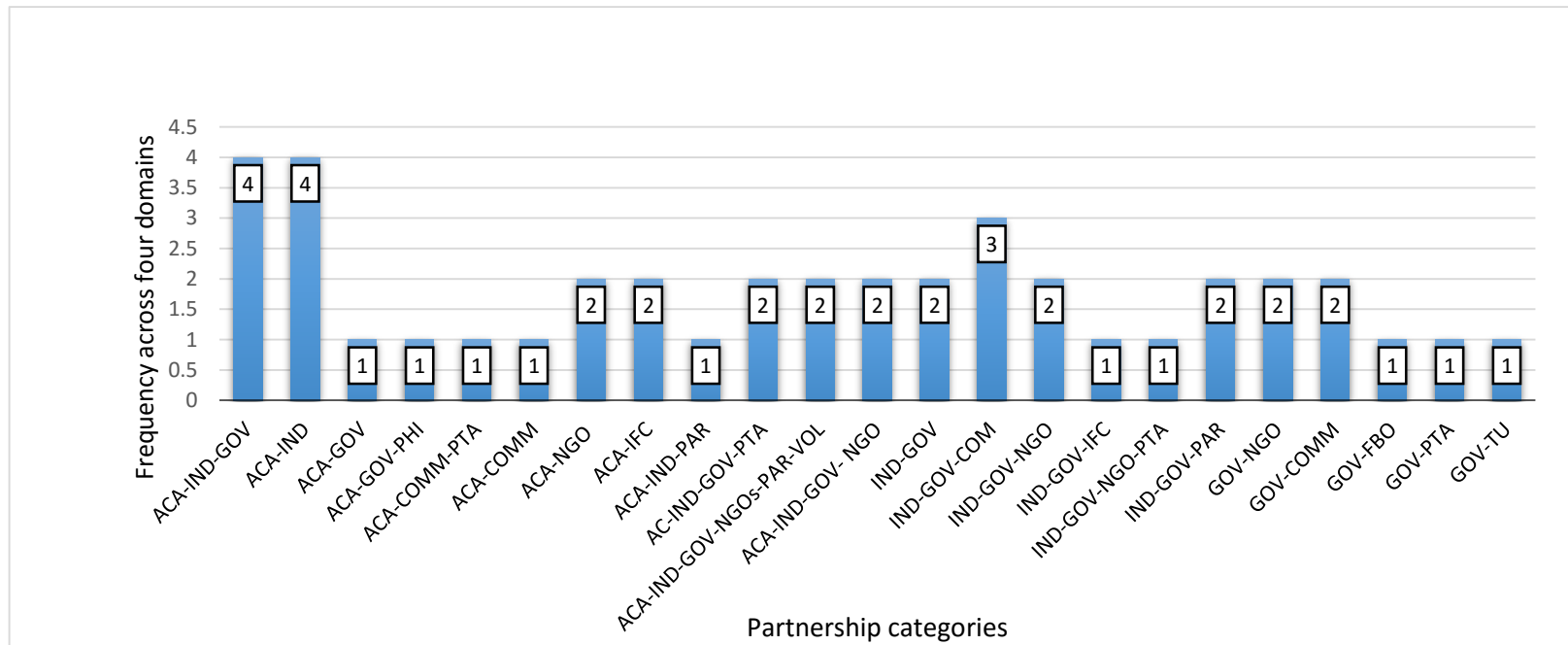


Figure 9. 4: Chart showing stakeholder partnership categories across four domains

Table 9.3 and figure 9.4 shows the total number of stakeholder partnership categories generated during the pre and post-intervention analysis and their frequency across the four domains.

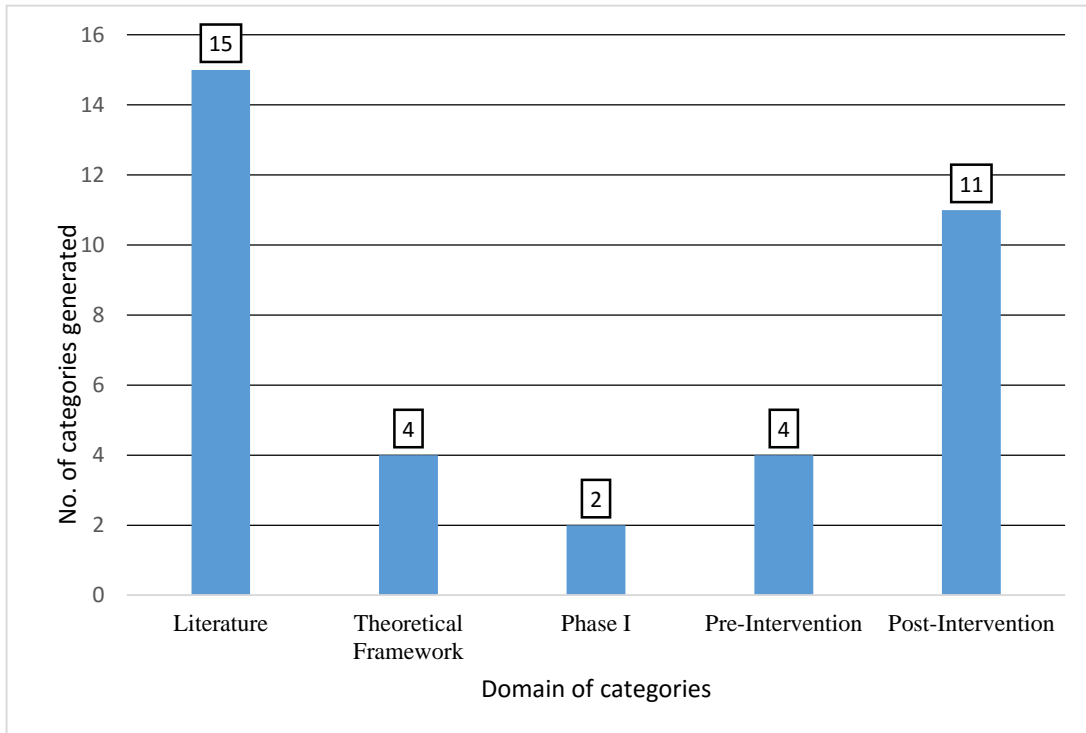
Findings from the analysis in Table 9.2 above shows that there are 23 different types of partnership categories across all four domains (the literature review, theoretical framework, pre and post-intervention stages). Findings from this Phase 2 of the Main Study revealed one partnership category with the same features as the THM, namely academia-industry-government. On the other hand, three different partnership categories were revealed to possess the exact characteristic features of the QHIM, namely academia-industry-government-civil society/users. There are variations in the stakeholders that constitutes the civil society/users sphere in the QHIM, but it reveals the adequate representation of stakeholders needed for REE TVET provision in Nigerian technical colleges.

- GTC, PH-SEEFOR
- GTC, PH-World Bank

These two categories of partnership identified at this technical college in Phase 1 of the Main Study form part of the four identified in Phase 2, bringing it to a total of six partnership categories found at the pre-intervention stage. This is illustrated in Table 9.4 at the pre-intervention column.

Table 9. 4: Number of partnership categories generated in the respective domains

Source	Literature	Theoretical Frameworks	Phase 1	Phase 2	
				Pre-Intervention	Post-Intervention
Number of categories generated	15	4	2	4	11
Total	15	4	2	4	11



**Figure 9. 5: Chart showing number of partnership categories generated in the respective domains**

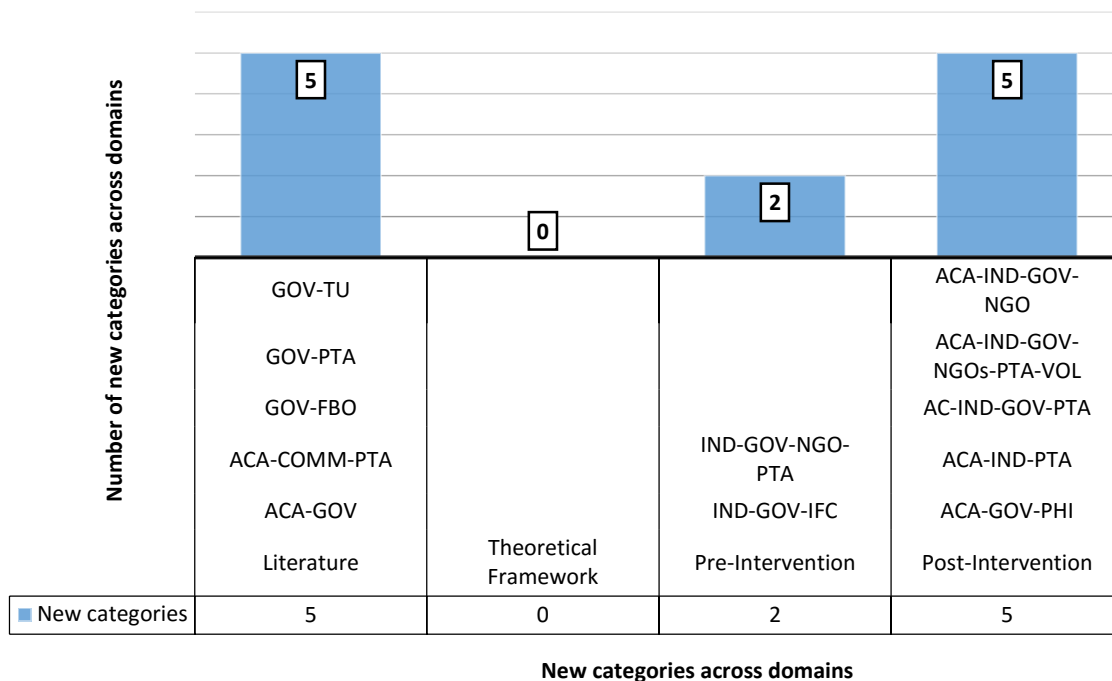
The result from Table 9.4 above shows that the literature domain consists of 15 partnership categories, followed by post-intervention with a total of 11, whilst the first phase of the pre-intervention recorded two, and the theoretical frame the least with four categories.

Furthermore, as illustrated in Figure 9.4 above, it can be seen that there is a progression in the level of partnership generated at every phase beginning from Phase 1 to pre and post-intervention. The findings in Phase 1 of the Main Study revealed two partnership categories identified with GTC-PH, namely ACA-GOV and ACA-civil society/users, which are associated with the THM and QHIM respectively. However, during the first stage-pre-intervention of the five CBPAR cycle, the partnership category increased from the identified two to four different partnership categories. One of the categories reflecting the exact features of the THM, whilst the remaining three mirrored the characteristics of the QHIM.

From Phase 2 of the main study, the results show that amongst the 15 partnership categories revealed as shown in Table 9.2 above, only one of such collaborations reflected the exact three spheres of the THM, namely academia, industry and government, and this is found across all four domains namely literature, theoretical framework, pre and post-intervention. Furthermore, the findings revealed three partnership categories reflecting the exact characteristics of the QHIM involving four different stakeholders within the Users spheres, namely PTA, NGOs, PAR, and volunteers. This is shared only in the post intervention domains. Other stakeholders within the users' sphere from the pre and post-intervention domains include for the pre-intervention IFC, local community, and PTA, whilst for post it consists of PHI, IFC, PAR, Comm, and NGOs.

Table 9. 5: Number of new partnership categories generated across the four domains

<b>Source</b>	<b>Literature</b>	<b>Theoretical Framework</b>	<b>Pre-Intervention</b>	<b>Post-Intervention</b>
	ACA-GOV		IND-GOV-IFC	ACA-GOV-PHI
	ACA-COMM-PTA		IND-GOV-NGO-PTA	ACA-IND-PTA
	GOV-FBO			AC-IND-GOV-PTA
	GOV-PTA			ACA-IND-GOV-NGOs-PTA-VOL
	GOV-TU			ACA-IND-GOV- NGO
New categories	5	0	2	5



**Figure 9. 6: Chart showing number of new partnership categories generated across four domains**

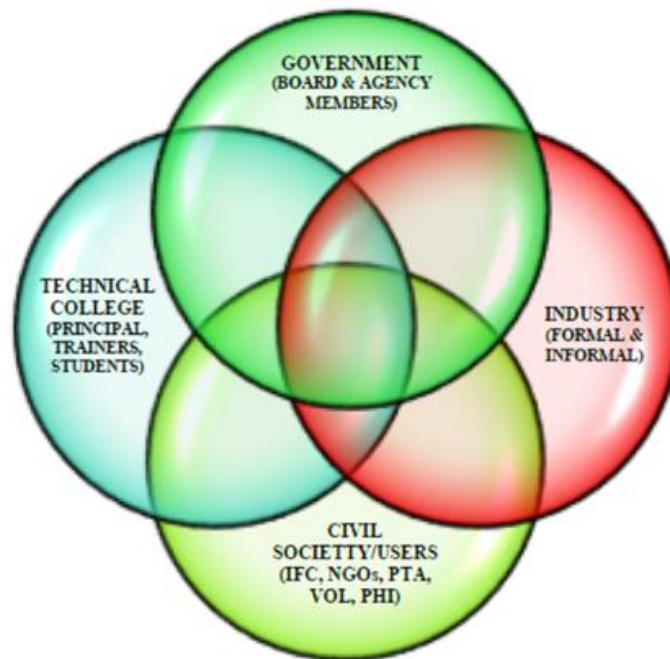
Table 9.4 above illustrates the total number of new independent categories generated across all four domains. Both the literature and post-intervention domains share five partnership categories, whilst the pre-intervention and theoretical framework recorded two and zero respectively.

A sustainable REE model of partnership in TVET provision as implied in this study is a prototype of stakeholders required to collaborate in the planning, designing and implementation of TVET programmes in Nigerian technical colleges. These stakeholders are expected to have a shared responsibility in the harnessing of all resources needed in the execution of technical college programme, and to share from its benefits as well.

Developing a sustainable model of partnership in TVET provision in GTC Port Harcourt entails a collection of common stakeholders emerging from the new partnership categories from pre and post-intervention findings as illustrated in Table 9.5. This implies that a new model of partnerships for REE TVET provision involves the collaboration

between academia (ACA), industry (IND), government (GOV), non-governmental organisations (NGOs), international financing community (IFC), Parents (PAR), Parents Teachers Association (PTA), Volunteers (VOL), and philanthropic individuals (PHI).

The findings emanating from the analysis with both theoretical frameworks employed in the study thus revealed that TVET provision in GTC Port Harcourt requires some sort of partnerships that spans beyond three institutional spheres of the THM, but requires a model that involves the civil society/users, which of course is the characteristic feature of the QHIM as depicted in Figure 9.6 below. However, the data shows that delivering an efficient TVET programme requires collaboration amongst different stakeholders, but not at the same level as reflected in the characteristic features of the QHIM. This implies that stakeholders from the four spheres of the QHIM can collaborate, but at different levels of hierarchy.

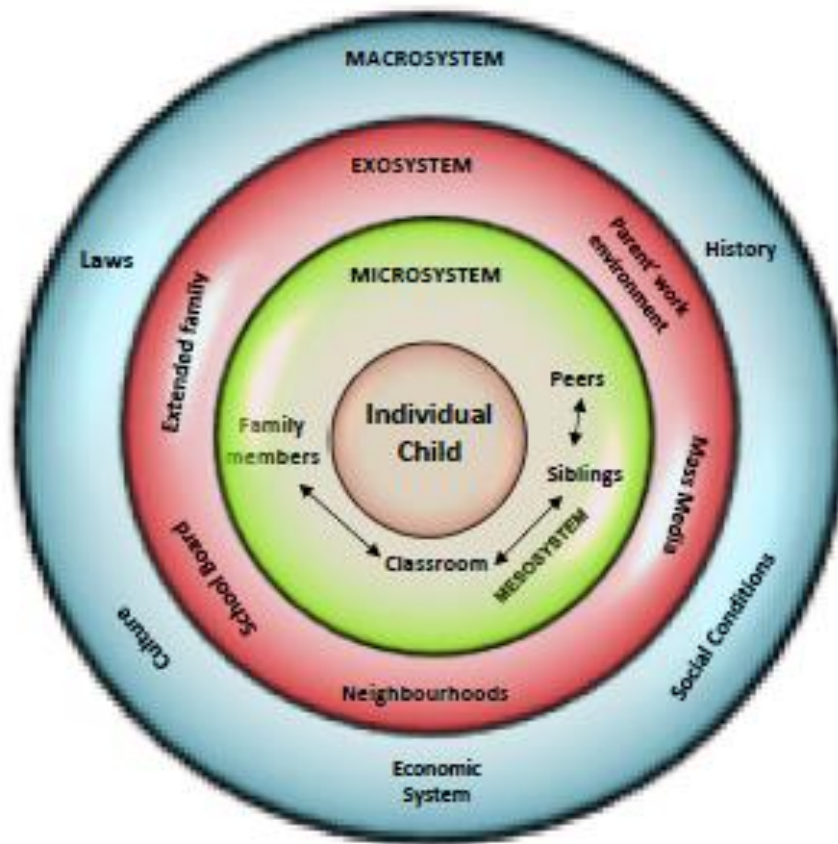


**Figure 9. 7: Quadruple Helix Innovation Model of REE partnership**

This development therefore, shows a limitation in QHIM in capturing what is happening at micro/macro level within this context in addressing the issue of REE TVET provision, since it advocates an equal level of collaboration amongst partners. It is in this regard, that a theory that promotes different levels of influence in hierarchy between

stakeholders involved was sought. This type of relationship is evident in the Social Ecological Model.

According to Eisenmann et al. (2008, pp. 3-4) the Social Ecological Model, as depicted in Figure 9.7 includes levels of concentric rings describing the different societal and environmental factors that influence the eating and physical activity patterns as a set of nested environment. The “physiologic core” of the model incorporates the genetic, physiologic, and socio-cultural forces that shape our identity. This core is surrounded by Microsystem, followed by the Exosystem, and Macrosystem. The Microsystem is the immediate environment the child communicates with, being constituted by family members, sibling, teachers, and peers, among others. The Mesosystem is the relationship that exists between the various microsystems such as the relations that parents have with a child’s siblings and teachers that affect the target child. The exosystem are the child’s semi-immediate environment, that is, the surroundings which the child does not usually relate with directly, namely school board, extended family, neighbours, mass media, and parents work environment. Then, the macrosystem is the larger societal level which shapes what happens to the child. Its constituents include; social norms, Laws, Culture, Economic System, Social Conditions, and History.



**Figure 9. 8: Bronfenbrenner’s Ecological Model describing the set of nested environmental influences on a child (Eisenmann et al., 2008)**

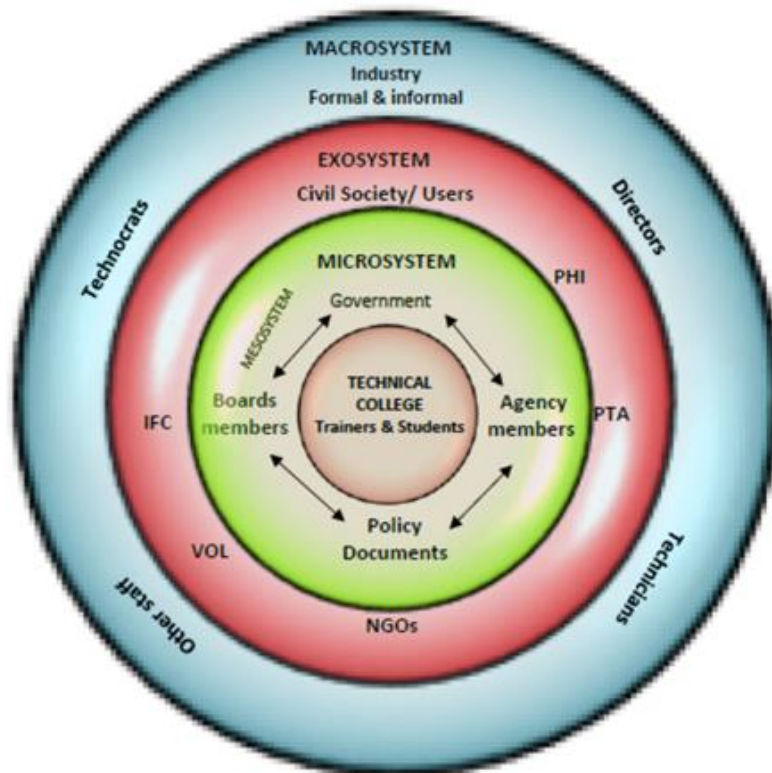
Hence, in the context of this study, the model represented above was used to interpret the type of relationship that exists between stakeholders in delivering an efficient TVET programme at the technical college level. As mentioned earlier, the data revealed that collaboration amongst the various spheres as represented in the QHIM namely academia, industry, government, and civil society/users, however the data shows that these are not on an equal footing. This implies that there are stakeholders whose level of interaction with the College is immediate and more positively influenced compared to others. These levels are thus represented using the microsystem, exosystem, and macrosystem in Figure 9.6 above.

Accordingly, the “physiologic core” of the model includes the genetic, physiologic, and socio-cultural forces that shape our identity. Deducing from this, we can extend this so that academia (technical college trainers and students) in the context of the model is



equivalent to the individual child, and the standard of academia is shaped by its environmental factors, otherwise known as the microsystem, exosystem and macrosystem. Amongst the various system levels, the macrosystem seem to have the greater influence of what shapes academia's (individual child's) identity. In other words, both the exosystem and microsystem have influence on academia (individual child) but not to the extent that the macrosystem does. This could be interpreted as the cause of the low efficiency recorded by GTC-PH in Phase 1 of the Main Study. It was revealed that the first partnership identified with the College was with SEEFOR (an agency of the Government). This was followed by the second partnership between the College and World Bank (a stakeholder in the civil society/user sphere). Thereafter, at the pre-intervention phase, the first new category of partnership identified highlighted the number one stakeholder as industry. From such findings, and interpreting this with the social ecological model, one could argue that the government belongs to the microsystem, since it is the closest environment academia interacts with, followed by the civil society/users at the exosystem level, and industry at the macrosystem level. Since the relationship in what transpires in the social ecological model is in the order of hierarchy and influence, it is possible to conclude with such revelation as emanating from the findings of the study that the interaction level for REE partnerships is reflected in the format academia-government-users-industry.

In other words, academia (technical college principal, trainers, and students) interacts with the microsystem consisting of government members from boards and agencies; for the exosystem, it includes the civil society/users (international financing community (World Bank, among others), Non-governmental organisations (NGOs), Parents Teachers Associations (PTAs), Volunteers (VOL), and philanthropic individuals (PHI). Lastly, the macrosystem is industry (directors, technocrats, technicians, and other staff of both formal and informal industry). This is further illustrated in Figure 9.8 below.



**Figure 9. 9: Ecological Model of Relevant, Effective and Efficient partnerships in TVET provision**

Thus, the Model in Figure 9.9 above reflects the different levels of interaction between the microsystem, exosystem, and macrosystem as found in this study, but with different components representing the various stakeholders found within the QHIM. As mentioned earlier in chapter two of the study, the rationale in adopting this model is such that it offers an explanation of what transpires at the different system levels. Hence, the interpretation given to the EST in this study does not follow the conventional description by Bronfenbrenner where the Government operates at the macrosystem level and contributes more to what shapes the identity of a child. Furthermore, the interpretation emanates from the findings where the government is the only body closest to the institution, yet could not make impact of developing a Technical College programme that is responsive to the need of the industry. More so, the findings show that, the College producing skills-responsive graduates that will meet the policy objective of the programme, is only achievable when industry champions the course. This resulted to the industry appearing at the macrosystem

level as interpreted in this study. This implies that, it is the industry input with regard to skills requirement in Technical College programme that makes it effective, else, the institution will end up producing graduates whose skills are unsolicited for. In that case, this now shows the industry as an entity with the greatest influence to what shapes Technical College programme. Thus, represented as follows:

**Academia** (Individual child): Representatives from the college such as the principal, head of departments, teachers, instructors and students.

**Microsystem** (Government): Representatives from Government boards, agencies and parastatals such as directors, project managers, and other staff within the government.

**Exosystem** (Users): Representatives from institutions other than academia, industry and government, such as International Financing Community (World Bank, among others), Non-governmental organisations (NGOs), Parents Teachers Associations (PTAs), volunteers (VOL) and philanthropic individuals (PHI).

**Macrosystem** (Industry): Representatives from both formal and informal industry such as directors, technocrats, technicians, and other staff within the jurisdiction of industry.

- *Using CBPAR, how do we develop a sustainable REE model of partnership in TVET provision in Government technical college, Port Harcourt?*

As mentioned earlier, the CBPAR approach entails collaboration between stakeholders within the TVET community throughout the research process, with the focus of addressing the problems of the people in the community. This implies the involvement of all stakeholders in establishing the research question if no one exists, to developing tools for data collection and analysis, to dissemination of the findings. CBPAR is a powerful tool when it comes to the understanding partnerships in addressing issues of practical concern to community members. The reason is that, at the core principles of the CBPAR framework, it requires an active level of participation in contact and interaction between all stakeholders concerned to ensure the development of outcomes that can be applied in making positive

changes in their own community. This level of interaction between various stakeholders produces a sense of collaboration amongst each of the parties concerned on specific roles and responsibilities expected of them.

The CBPAR in its application aided the development of a new model for REE TVET provision in Nigerian technical colleges in that it allowed me to bring together all concerned stakeholders within the TVET community namely: TVET trainers and students from GTC-Port Harcourt, industrial employers of technical college graduates; and government representatives. These aforementioned stakeholders were involved throughout the stages of planning and designing of an intervention programme, implementation of the programme, data collection and analysis, reporting and dissemination of the study findings.

#### **9.4 SUMMARY OF FINDINGS**

This section presents a summary of findings for this chapter, which aimed at theorising the development of a sustainable REE model in the provision of TVET in Port Harcourt Government Technical College. Findings from the phase of the main study revealed that in all the partnership categories found with those technical colleges that are involved in partnerships across the three geopolitical zones, none of the institutions shared the exact characteristics of the spheres that constituted either the THM or QHIM. The nature of partnerships included in all the cases only two of the institutional spheres of both frameworks. In all, the only zone with industry involvement in the nature of partnership category found is South-West, whilst South-South has a dominant place for stakeholders from the Users category.

However, findings from Phase 2 of the main study revealed one partnership category for the THM and three for QHIM. Although there are variations in the stakeholders that constitutes the Users sphere in the QHIM, it however signifies the adequate representation of stakeholders needed for REE TVET provision in Nigerian technical colleges.

Furthermore, the results revealed the generation of new categories, five from both literature and post-intervention, whilst two and none were generated for pre-intervention and theoretical framework respectively. From these new partnership categories generated, a new

model of REE partnership with different interactions and impact levels among various stakeholders was developed through the adopted features of the social ecological lens. Figure 9.8 above depicts the nature of the model and the different levels of interaction and influences on academia (technical college).

In the next chapter, I present the discussions on finding new directions in TVET provision in Nigerian technical colleges.

## **CHAPTER 10**

### **DICUSSION OF FINDINGS**

In Chapters 5,6,7,8 and 9, the findings and analysis of the preliminary and main study were presented. The analyses of the three research questions in the preliminary study confirmed, firstly, that there is no even distribution of TVET provision across the six geopolitical zones of Nigeria. It also revealed the absence of any technical college in Zamfara State, North-West zone. Secondly, the study also revealed highly disproportionate ratios in general education compared to TVET provision across the six zones, which is an indication of much greater preference for general education schools over technical college provision. Thirdly, the results on the level of efficiency of a few selected technical colleges show that only two zones, namely North-Central and South-West recorded above 50%. The implication of this is that the level of TVET provision in these technical colleges is below the desired characteristics of an efficient TVET institution and as such needs improvement.

Furthermore, the analyses of Phase 1 of the main study show that, out of 22 technical colleges surveyed, only seven (32%) were involved in partnerships, and of these seven, five (71%) are in multiple stakeholder partnerships.

Findings from Phase 2 of the main study, which focuses on the research question two, revealed, firstly, about 26 factors raised by the various stakeholders in the CBPAR community as causing the low efficiency experienced by GTC-Port Harcourt. Secondly, it was also revealed by participating stakeholders that strengthening the existing partnerships would mean establishing a type of collaboration that portrays the characteristic features of the QHIM. That is, a partnership arrangement that incorporates technical college, industry, government, and other stakeholders from the civil society/users such as NGOs, World Bank (IFC), community, PTA, philanthropic individuals, and volunteers. Lastly, the result from the last section of research question two in Phase 2 of the main study revealed that new categories were generated, five from both literature and post-intervention, whilst two and none was generated for the pre-intervention stage and the theoretical framework respectively. From these new partnership categories generated, a new model of REE partnership, with

different interactions and impact levels among various stakeholders, was developed through the adopted features of the social ecological lens.

This chapter presents the discussion based on finding new directions in TVET provision in Nigerian technical colleges. This study was concerned with largely two key research issues namely:

- a) the gross neglect of TVET (Jacob, 2006) and
- b) the low emphasis placed on the provision of quality TVET (Akanbi, 2017) within the Nigerian educational/schooling system.

The study sought to provide a better and deeper understanding of these issues from an empirical perspective by focussing firstly on the following three questions:

- (i) What is the extent of TVET provision across the six geopolitical zones of Nigeria?*
- (ii) How does the TVET provision within these six geographical zones compare to the provision of general education schools?*
- (iii) What is the level of efficiency of a selected TVET institutions across these four geopolitical zones of Nigeria?*

The aim of this study was to gain a deeper understanding of the level of efficiency of the federal, state and private technical colleges in the provision of TVET across the six geographical zones in Nigeria, in order to identify how we can improve and sustain their performance and quality. However, one major challenge in determining the efficiency level of TVET provision, as contained in a report published by UNESCO-UNEVOC, is the different interpretation given to the concept of quality by training providers, trainers, administrators, and policy makers within the TVET system (Alemu, 2013). To solve this, the study sought the use of an analytical framework, which foregrounded only the internal efficiency of systems.

Once the provision and efficiency of the surveyed TVET institutions across the different geographical zones was established, the study went further and explored these against the backdrop of the existence of TC partnerships with other stakeholders. In this

regard, the type of partnership in existence was brought to the fore. The third and last part of the study, the intervention, was addressed in two ways through the use of CBPAR:

- Exploring how we can strengthen these partnerships and
- Exploring how we can develop new models of partnerships for creating an relevant, efficient and effective TVET system.

To accomplish that, the chapter is divided into two parts, namely discussion of findings on the preliminary and main study sections. Each of the sections presents discussions based on the research questions posed in the study.

## **10.1 DISCUSSION OF THE FINDINGS FROM THE PRELIMINARY STUDY**

This section presents the discussion of findings from three research questions under the following sub-headings representing Phases 1, 2 and 3 respectively;

- Extent of TVET provision across the six geopolitical zones;
- Comparison in technical colleges distribution vis-à-vis general education Schools across the six geopolitical zones; and
- Efficiency level of few selected technical colleges across four geopolitical zones.

### **10.1.1 Extent of TVET Provision across the Six Geopolitical Zones**

Findings from the analysis of research question one in the preliminary phase of the study revealed the following: there are few technical colleges sited across the six geopolitical zones; there is no even distribution of technical colleges across the six geopolitical zones, (for example, the absence of a technical college in Zamfara State, North-West zone). This finding agrees with the comments of the Principal of Government Technical College, Owo, Ondo State. In Punch Newspaper of July 5, 2014 she lamented on the number of technical colleges across the country (ScitechAfrica, n. d). She further remarked that in a country of about 170 million people, constituted by 774 Local Government Areas, which considers TVET as a tool for economic and industrial development, having these few number of technical colleges is not sufficient to provide the required workforce, let alone sustainable gainful employment.



### **10.1.2 Comparison in Technical College Distribution Vis-À-Vis General Education Schools across the Six Geopolitical Zones**

The analysis of the research question in this section revealed highly disproportionate ratios, ranging from 1:138 to 1:70, in technical college numbers compared to those of general education (conventional) schools across the six geopolitical zones. With such striking statistics, one can conclude that much greater preference is accorded to general education compared to TVET provision at technical college level. This findings confirms the assertion by Akanbi (2017) that little emphasis is accorded to TVET provision in Nigeria. In addition, Akanbi (2017) further stated that in the 4-year *Strategic Plan for the Development of the Education Sector 2011-2015*, it was noted that the government policy in the past has not accorded TVET its rightful place within the education subsector of the country despite policy mandates.

### **10.1.3 Efficiency Level of a Few Selected Technical Colleges across Four Geopolitical Zones**

Findings from the analysis of research question three, on the level of efficiency of a few selected technical colleges revealed that only two zones, namely North-Central and South-West recorded above 50%, whilst the South-South and South-East are from 40% below. This implies that the level of TVET provision in these technical colleges is below the desired characteristics of an efficient TVET institution of about 96% as recommended by (IDEAS, 2008). Furthermore, this findings are consistent with those of IDEAS (2008). In their study of the internal efficiency of Governmental and Non-Governmental TVET institutions, it was revealed that some institutions recorded 50% above. The study attributed the cause of low efficiency recorded in some of the institutions to lack of quality inputs in the training system. Also, in agreement with this, ADB (2008); Eze and Okorafor (2016) remarked that one thing that has compromised the quality of training in different nations of the world, Nigeria included, is the lack of essential inputs. In conformity with this, Okorafor and Okorafor (2011) contend that inadequate instructor training, lack of instructional aids, use of outmoded tools and equipment, dearth of qualified, competent, and motivated trainees and teaching staff, and lack of innovative strategies such as competency based training contribute to the low quality of training.

In the next section, I turn my gaze to the discussion in the main study.

## **10.2 DISCUSSION OF THE FINDINGS FROM THE MAIN STUDY**

Discussions in this section of the chapter focuses on the findings on research question one and two in Phases 1 and 2 of the main study respectively. Both phases are presented under the following points:

- Existence and nature of partnerships;
- Factors that inhibits the efficiency of TVET provision
- Strengthening the existing partnerships;
- Development of a sustainable model of REE partnerships.

### **10.2.1 Existence and Nature of Partnerships**

Discussions in this section addresses the findings in the first phase of the main study, which focuses on the existence and nature of partnerships.

Findings from the first stage of Phase 1 on the existence of partnerships revealed that out of 22 technical colleges surveyed, only seven (32%) are involved in partnerships, whilst 15 (68) do not have any form of collaboration. This implies either low or no stakeholder involvement. Firstly, the findings agree with the study of Umar and Ma'aji (2010), who attributed the challenges of lack of resources for the effective implementation of technical college programme to low stakeholder participation. This finding is also in line with Ayonmike, Igberadja, Igberaharha, and Okeke (2014), whose study on the status of partnerships between TVET institutions and industries in Delta State, Nigeria revealed that no form of collaboration exists amongst technical training institutions and any organisation. The finding also corroborates that of Milio, Garnizova, and Shkreli (2014), whose study in Myanmar found that most TVET institution were not into partnerships with either public or private enterprise in planning, delivery and implementing their institutions programme.

The second stage of Phase 1 focused on the nature of partnerships. The findings revealed that out of the seven technical colleges involved in partnerships, five (72%) are into multiple stakeholder partnerships. The results for South-South and North-Central show that none of the technical colleges in South-South was involved in partnership with stakeholders

from industry. However, the nature of partnership found are linked with stakeholders from government boards and agencies, PTA, international financing community (World Bank), Parents Teachers Association (PTA), and philanthropic individuals. This finding is in agreement with Zone (2014), whose study found that TVET Colleges in the Gurage zone of Ethiopia lack private sector participation in planning and implementing training programmes, and this has hindered the level of their production of skilled graduates. This finding also accords with Hasan, Clement, and Alamgir (2014), who report that the deficiency in skills of polytechnics graduates in their study was caused by lack of cooperative industrial participation in training programme. Asian Development Bank [ADB] (2014) also found that most TVET training institutions have low employer involvement. It further states that the best TVET system is one that exhibits close employer involvement in policy making, planning, governance, standards, curriculum development, and assessment of trainee performance, as well as feedback on system performance. According to the document, the issue of TVET relevance solely depends on the relationship between industry and training providers. Without private sector involvement, the TC programme will be supply-driven and will lack relevance (Milio et al., 2014).

This finding involving only two institutional spheres of the THM, academia and government falls short of the theory, which advocates trilateral relations between academia, industry and government (Etzkowitz & Leydesdorff, 2000). However, the findings revealed the involvement of colleges from both geopolitical zones in partnerships with stakeholders from the fourth sphere of the QHIM, which civil society/users.

This section is followed by the discussion on findings emanating from Phase 2 of the main study.

### **10.2.2 Factors that Inhibit the Efficiency of TVET Provision**

The discussion of findings in this Phase 2 of the main study addresses the findings revealed in the first section of research question two through the CBPAR process. The findings revealed about 17 factors raised across all stakeholder groups; five are shared amongst various stakeholders whilst 12 were raised independently; two from students, eight from trainers, and one from industry employers. These factors are discussed under the following sub-headings: government support; adequacy of TVET curriculum/planning;

industrial training experience; and funding TVET in technical colleges. Other factors include: infrastructural facilities, training materials, tools and equipment, conducive learning environment, management and administration of TVET institutions, teaching and learning strategies, adequacy of teachers/knowledge, teacher motivation and commitment, effective TVET programme monitoring and students' interests in TVET.

#### **10.2.2.1 Government Support**

One of the TVET trainers complained of lack of government support in ensuring the effectiveness of the TC programme. He stressed that failure by government to provide all that is needed for the training of the students hinders the effective implementation of the programme. This corroborated points made by Legg-Jack (2014) and Asian Development Bank (2015), that part of the glitches to the effectiveness of TVET programme is associated to lack of government support in providing the facilities required for effective implementation of the training programmes.

#### **10.2.2.2 Adequacy of TVET Curriculum/Planning**

According to Umunadi (2013), TVET curriculum should be planned in such a way that it reflects societal needs, the changing interests and values of various stakeholders in order to keep pace with modern trend. One of the trainers points out that curriculum planners fail to consult other stakeholders before planning the curriculum. In support of this finding, Berhe (2011) argues that there is a lacuna between training institutions and the end users of graduates. Wallenborn (2010) agreed with this, as he contends that planning a training programme that will equip its recipients with the right skills and competencies requires the need to collaborate with the right stakeholders with a consideration of the enormous benefits of such programmes. Audu, Kamin and Balash (2013) concurred with this that the inability of the college curriculum to yield to the requirement of industry might be attributed to lack of collaborative planning. Specifically, the industry employers lamented that what is being taught in TCs no longer conforms to what is obtainable in industry. This finding is in conformity with Nkwame (2015) who maintained that the curricula for TVET training institutions have failed to shape their graduates to meet the requirements of employers. In support of this view Arfo (2015) argued that TVET curricula in Nigeria are not responsive to the needs of the labour market and the economy, and gives as reasons that lack of this

(responsive curriculum) approach implies a failed policy objective for the programme (Kingombe, 2012). Furthermore, African Union [AU] (2007) supported this by recommending that in revitalizing TVET in Africa, the policy states that training providers should establish strong partnerships with stakeholders community, specifically with industry employers.

### **10.2.2.3 Industrial Training Experience**

Industrial attachment is one avenue through which students could be equipped with skills that guarantee them work readiness. Trainers from the college revealed that students sent on industrial training are not accepted by industry, and that industry employers have refused to cooperate with the college. The implication of this finding is that students do not go on industrial training attachment. This finding is in consonance with Munishi (2016), who attributed lack of skills among TVET graduates and teachers to lack of exposure to industrial training experience. Osman et al. (2008) posited that students participation in industrial training attachment schemes has the capability to improve their skills. Similarly, Watters, Hay, Dempster, and Pillay (2013) reported that establishing collaboration between school and industry can help boost staff and students' competencies through industrial-based learning and work-based placement programmes. According to Legg-Jack (2014), industrial training is a scheme in the college programme that avails students the opportunity to put theory acquired in class into practice, as industrial training brings them (students) face-to-face with real life work situations, and serves to boost their confidence. Dasmani (2011) confirmed this, by attributing the difficulty of graduates from technical institutes in Ghana to acquire experience to lack of the partnership with industry that would improve the practical skills of teachers and students. The implication of this is that when students are not involved in industrial training, there is every tendency that they will be deficient in practical skills acquisition. It is in the light of this that the NPE (2013) recommended industrial training for technical college programme as an avenue to improve on their practical skills acquired in the college.

### **10.2.2.4 Funding TVET in Technical Colleges**

TVET is capital intensive, due to the type of facilities required for its effective implementation. Trainers in this study bemoaned the poor state of funding of TC programme

by the State. They described it as a major setback to the actualization of the policy goal of the programme. Similarly, Akhuemonkhan and Raimi (2013) reported that research results from Pakistan revealed that TVET lacks adequate funding, and that most of the monies provided by the government to implement the programme are insufficient. This finding confirms the views of Uwaifo (2010), Wahba (2010), Moses and Kingsley (2013) who stated that funding plays a major stake in responding to the modern training and infrastructural facilities required for the effective achievement of TVET objectives. Uwaifo (2010) attributed the gradual extinction of TVET programmes in various training institutions in Nigeria to poor governmental funding. Likewise, Kingombe (2011) stated that the issue of finance has been considered as an inhibiting factor to the objectives of TVET, considering that this aspect of education is an expensive form of education, so its expansion without the necessary and adequate facilities does not lead to productivity. The College principal in his contribution called on stakeholders from both private and volunteer sector to collaboratively finance the TC programme. Atchoarena (2009a) contended that financing strategies for TVET are part of a broader effort to engage all concerned stakeholders, especially companies and students, in a dynamic process of skills acquisition.

#### **10.2.2.5      Infrastructural Facilities, Training Materials, Tools and Equipment**

One of the factors that has impeded on effective TVET provision in different spheres in Nigeria is the lack of infrastructure. Teachers, industry employers and government representatives who participated in the study lamented on the poor state of building facilities such as workshops, classrooms and power supply. In agreement with this, Abassah (2011) argued that most TCs in Rivers State are confronted with the problem of inadequacy of workshops for the delivery of training programmes. These findings also corroborate Abdullahi (2014) and Munishi (2016), whose studies in Nigeria and Tanzania respectively found lack of power supply, classroom and inadequate computer laboratories as challenges to the implementation of TVET programmes.

Stakeholders from the college, industry, and government in the study lamented that one of the major challenges to effective implementation of technical college programme is the dearth of training material, tools and equipment. Also, listed was the issue of non-

functional machines. The trainers attributed this to negligence on the part of government in making adequate provision for this. Failure to provide this has implications for the REE of technical college programme. This finding aligns with Umar & Ma'aji, (2010) whose study also revealed that technical colleges in North-central Nigeria are plagued with inadequate training materials, tools and equipment. In agreement with this finding also is a study by Zone (2014) in Ethiopia, which revealed that lack of appropriate training machines and materials are part of the challenges that hinder cooperative training in TVET colleges and companies. The study thus recommends that the only solution to averting all challenges encountered in the study is to raise awareness on the importance of cooperative training in the zone. Furthermore, a study in Kenya by Kigwilu (2014) found that dearth of teaching and learning facilities are key challenges to effective implementation of Artisan and Craft curriculum. However, the findings of this study varied with that of Savage and Brennan (2011), who reported that most TVET training institutions in Afghanistan have modern training facilities to carry out their training. To improve on the REE of TVET provision, Umar and Ma'aji, (2010) together with Dasmani (2011) recommended that one of the strategies is for government to partner with stakeholders such as private sector employers, NGOs, PTA, and CBOs, among others, in providing the training facilities needed.

#### **10.2.2.6 Conducive Learning Environment**

Teachers and students bewailed the poor status of building and classroom facilities and its impact on teaching and learning. Teachers complained that students cannot learn in a classroom without desks. Also, the students confirmed this, by describing the state of their classrooms as being in poor condition so that as a result they cannot learn properly. Dokubo (2007) similarly found that the skills acquisition centre built in Emohua Local Government Area of Rivers State, Nigeria has been non-functional due to the poor learning environment. More so, this finding is supported by Mege (2014) whose study also found that lack of conducive environments, due to lack of adequate classrooms and desks, among others, has a negative impact on students learning achievement. Buttressing this, Biao and Tawo (2007) remarked that the presence of a conducive learning environment has a way of stimulating the learning process of students; therefore, there is need to create the right environment for students in order to achieve the policy aim of producing skillful graduates in every trade.

Another factor raised by trainers was the issue of overcrowded classroom. This finding agrees with Legg-Jack (2014) whose study on employability skills of technical college graduates revealed overcrowded classrooms as one of the factors that impeded the development of the desired competencies in trainees. Also, the conditions of TCs as revealed in this study contravenes the stipulation of the National Policy on Education (2004), which recommends that for effective teaching and learning, and practical exercise, 2 teacher-student ratio of 1:20 is allowed for trader-related subjects such as Mechanical and Electrical Trades. Dasmani (2011) described overcrowded classrooms as one of the challenges that inhibits the effective preparation of students for workplace training.

#### **10.2.2.7 Management and Administration of TVET Institutions**

According to Berhe's (2011) argument, in planning TVET programmes, one condition that must be put into consideration is the existence of an active management. Representatives from the college and government in the study attributed part of the challenges encountered by technical institutions in the State to the lack of an existing technical schools board with qualified personnel to manage technical training institutions. Similarly, Legg-Jack (2014) argued that one of the main factors responsible for poor implementation of technical college programmes in Rivers State is the absence of the Technical Schools Board and qualified persons to manage its affairs. Nwaolu (2005) described this as the misplacement of priority when having novices as managers in technical and vocational education. In addition, Osami (2013) asserted that in recent times, the management of TVET in Rivers State has been allocated to staff who do not have disciplines relevant to TVET. He further attributed the adoption of some courses offered in the State-owned technical colleges curriculum that are not aligned with the needs of industry to poor organisation and management personnel. It is notable that Olugbamila (2014) attributed the level of success achieved in Lagos State to the establishment of Lagos State Technical and Vocational Education Board (LASTVEB), that coordinates partnerships between technical colleges in Lagos and other stakeholders. MacDonald, Nink, and Duggan (2010) similarly asserted that an effective TVET management will consider labour market needs, responding to the need of the formal and informal sector with regard to employment and the professional capacity of TVET training



personnel. The implication is that with a technical schools' board in place, together with proper organisation and management, there will be REE TVET provision.

#### **10.2.2.7 Teaching and Learning Strategies**

Students and industry employers in the study stressed the need for a practical-oriented skills training. This finding is supported by Dasmani (2011) and Legg-Jack (2014) who found that technical institution graduates lack detailed practical-oriented skills training, and this affects their job performance when employed. Nwaokolo (2004) described technical college curriculum in Nigeria as classroom-based training. Another finding noted was the lack of practical training. Most of the students identified the lack of practical training in their various trades, and complained that their training is too theoretical. Similarly, Ferej, Kitainge, and Ooko (2012) reported that teaching and learning in TVET institutions in Kenya lacks practical training. Fu and Tu (2013), whose study is based on employers' perspectives, argue that TVET training is too theoretical, which has resulted in the production of graduates who lack the skills to deal with modern technology. Likewise, Dike (2009) stressed that the inability of Nigerian technical college programme to address the issue of national development lies on the excessive emphasis placed on theory as compared to practice. To avoid market failure through skills mismatch, training provision, and underinvestment in training, there is need for a collaborative curriculum development process through the involvement of other relevant stakeholders within the community (Radwan Akindeinde as cited in Kingombe, 2012).

#### **10.2.2.8 Adequacy of Teachers' Knowledge**

According to Chua and Jamil (2012) technical knowledge as an important capability is required by every TVET teacher to produce diverse instructional techniques. Participants from academia and industry stakeholder groups stressed the lack of adequate number of teachers and lack of teachers with practical knowledge to dispense the needed skills required of TC graduates. These findings align with that of other scholars in the study of technical college programme. For example, this findings aligns with that of Audu, Aede, Hatib Bin, Kamin, Saud and Inti (2014) that reported deficiencies in the knowledge of technical college teachers in North-Central. In the light of this, King and Wang (2008) submitted that lack of

technical knowledge has led to unsuccessful teaching and learning processes and impeded the training process and its achievement. This finding is also supported by Adesina (2009) who agreed that instructor personnel in Nigerian vocational schooling system are not only inadequate, but also professionally unqualified. They are incompetent and thereby this makes their teaching ineffective. This finding is also in agreement with a study in Tanzania which attributed lack of employability skills amongst Tanzanian graduates to inadequacy of teachers with the right competencies (Munishi, 2016). Students identified the lack of teachers' practical knowledge as part of the cause for the lack of practical-oriented learning in the College. This is similar to the findings captured in Tanzania, Ghana and Zimbabwe (Munishi, 2016; Sherry & Yesueneagbe, 2013; Woyo, 2013); the studies found that teachers are not equipped with the desired practical competence to deliver on their respective areas of specialty. According to Rufai Audu, Musta'amal, Kamin, Saud, and Inti (2014), to ameliorate this problem, it is suggested that technical college teachers need to undergo training in practical and pedagogical skills in order to transmit practical skills to the students. Industry employers in the study were of the view that teachers be trained in industry for them to have adequate technical knowledge on modern technological equipment for executing their job. This submission is in line with Bukit (2012), who posited that close partnership with industry avails the teacher an opportunity to access information on latest technologies in use in industry, which can form the basis of a suitable teaching module.

#### **10.2.2.9 Teacher Motivation and Commitment**

Another finding highlighted by both trainers and students is the lack of motivation and commitment by teachers. Trainers specifically complained of the lack of government attention to the plight of teachers as they are not given incentives and promoted when due. Komba et al. (2013) agreed with this when they note that teachers' promotion takes too long and is not given adequate attention by the authorities concerned. According to students in the study, teachers are not committed to their work, as they come to school, only to sign their attendance register and remain in the staffroom without attending to their duties. This finding corroborates that of Tafida, Clement, and Raihan (2015) whose study confirmed lack of commitment from teachers as being caused by lack of appreciation by government, better

condition of service in the private sector, inadequate provision of training materials, tools and equipment in technical institutions.

#### **10.2.2.10 Effective TVET Programme Monitoring**

Students commented on the need for government to ensure that the technical college programme is properly monitored. This finding is in agreement with Raimi and Akhuemonkhan (2014), who found that to ensure TVET impacts on employability and national development in Nigeria, there is need for regular monitoring of teaching and learning activities in its institutions through regulatory bodies. Kigwilu, Akala, and Wambua (2016) recommended that government and the inspectorate agency responsible for quality assurance should regularly monitor training institutions to ensure that the standards set by the ministry of education are not compromised. On the other hand, it was reported that achieving effectiveness in TVET can only be conceivable through systematic monitoring and evaluation in order to be certain of the outcome of the programme (Abdullahi, 2014; Legg-Jack, 2014).

#### **10.2.2.11 Students' Interest in TVET**

The HOD of MVM trade points out that students are not interested to learn. This finding is supported by Oviawe (2015), who attributed their lack of motivation and interest to the inability of a teacher to transmit the desired technical knowledge as a result of applying old traditional methods and approaches to teaching. She further remarked that another thing that can dampen students' withdrawal of interests to learn in TVET is teachers' commitment and attitudinal disposition. Idialu (2007) also described a poor societal attitude as part of what constitutes students' lack of interest in technical and vocational education. Most students in technical colleges consider TVET programmes as not lucrative and as such, they tend to relax their interests in the programmes.

#### **10.2.2.12 Corrupt Practices**

One factor that hinders the efficiency of TVET provision in GTC-PH as remarked by trainers and students is corrupt practices by stakeholders responsible for the execution of TVET programmes. This view is supported by Dike (2013) as part of the problem with

TVET development in Nigeria. In a similar development, Rupp (2012) also remarked that corruption and theft of resources are part of the major challenges confronting the effective implementation of e-learning Policies in Zambian Technical Education, Vocational and Entrepreneurship Training Colleges in Zambia. Furthermore, this finding is in agreement with the result in Sub-Saharan Africa, evidences abound on how corruption in the management of finance has impeded the effective implementation of TVET programmes (Kingombe, 2011).

The following part of this chapter presents discussions on how to strengthen the existing partnerships.

### **10.3 STRENGTHENING THE EXISTING PARTNERSHIP FOR REE TVET PROVISION IN NIGERIAN TECHNICAL COLLEGES**

Findings from the analyses of stakeholders views on how to strengthen the existing partnerships identified at GTC-Port Harcourt revealed 15 categories of partnerships involving academia, industry (formal and informal), government, and non-governmental organisations (NGOs). Others include the community, Parents Teachers Association (PTA), the international financing community such as the World Bank, philanthropic individuals/organisations and volunteers. According to the participating stakeholders in the CBPAR intervention programme, strengthening the existing partnerships would mean technical college collaborating with industry, government and the other stakeholders listed. The discussion in this section is based on the value that each of these stakeholders offer.

#### **10.3.1 Academia - Technical College**

One of the stakeholders required in strengthening the existing partnership for a REE TVET provision in technical college is the school itself, as revealed in this study. Ten partnership categories revealed the need to involve the school as a stakeholder needed for strengthening the existing partnerships. The school has a huge role to play with regard to REE TVET provision, as supported by Amankwah and Swanzy (2011). According to them, the school has the responsibility of providing a conducive environment for TVET teachers and students to promote teaching and learning through the provision of the needed facilities. They further record that the school can collaborate with relevant organisations for efficient

TVET provision. Specifically identified in the findings is the involvement of teachers and students.

#### **10.3.1.1 Teachers and Students**

To achieve the aim and objectives of technical college, according to the participants, teachers are one of the most important stakeholders. Six partnership categories signposted the need to involve teachers and students as part of stakeholders required in strengthening the existing partnerships. Rose (2012) and Billet Billett (2014) agree with their view that TVET programmes will never realise their purpose without the involvement of those who teach and experience the programme such as teachers and students in determining the content. However, Billett (2014) noted that the roles of teachers as stakeholders in terms of identifying educational purposes, responding to local needs, determining the content and prioritizing what and how it should be taught are often marginal and relegated. Klimek (2010) submits that specific ways of teaching will deliver such graduates attributes as employability and creativity. Teachers, as interface between the curriculum and the students, should help develop the programme for which they are implementers, and this makes it simple since they relate with the recipients of such instruction. More so, as the key tool for curriculum implementation, they bear the first-hand experience of interacting with the students, and this positions them as major stakeholders in the TVET sector. On the other hand, Billett (2014) and Rose (2012) agreed that students also are important in stakeholders in the planning and execution of the training programme. Students are important components of the stakeholders' team being that they select and take part in TVET programmes, and in retraining, transfer, and professional upgrading programmes (Pompa, 2013).

#### **10.3.2 Industry - Formal and Informal**

Findings from the analysis in Chapter 8 revealed 11 different partnership categories involving industry, both formal and informal. Some of the participating stakeholders remarked that involving industry will enable the school plan the school curriculum to align with industry needs. This finding corroborates Watters et al. (2013) who remarked that partnership with training institutions involving industry avails the school the opportunity to plan an industry-responsive curriculum, because of the inputs from industry. It was also revealed that industry can provide training materials and equipment to the colleges. This is

in agreement with Alias and Hassan (2012), and Pompa (2013), who suggested that collaboration between TVET institutions and industry take many forms: funding for training; donation of equipment; teaching assistance; acceptance for teachers and students for training. Others include the involvement in curriculum development and occupational standard, signing of training contracts and joint scientific research. On the other hand, it was further revealed that partnership with industry can lead to training staff and students in new technologies that are not common to the College. Bukit (2012) and Griggs (2015) supported this finding, that partnership with industry can expose TVET trainers to new technologies and the dynamic nature of the workplace. Minghat, Yasin, Subari, and Noordina (2013) argued that some of the gains of collaborating with industry is to secure job placement for students, to identify the need for new courses and to increase the students' employment prospects.

Furthermore, partnership with industry can create room for the students to go on industrial training as remarked by the College principal. This result is true with the study of Watters et al. (2013), who argued that partnership with industry creates an enabling ground for students to participate in industrial training programme. It was also revealed that industry can use such methods as building, operating and transferring (BOT) some of the facilities the colleges lacks. Similarly, Umar and Ma'aji (2010) recommended that private sectors can use strategies such as build, operate and transfer (BOT), build, own, operate and transfer (BOOT), and rehabilitate-operate and transfer (ROT) as mechanisms to provide facilities lacking in TCs. This finding of this study is supported by Rufai; Audu, Abdulkadir, and Abdul (2013) who ascribed the success of the productive programmes being carried out in developed countries such as Australia, Canada, USA, and Britain, to the huge involvement of the industrial sector in collaboration with training institutions. Patrinos, Osorio, and Guáqueta (2009) likewise argued that meeting educational goals and improving learning outcomes could be achieved through partnership between the public and private sector, reciprocally complementing each other's strength. In addition, Lewis and Patrinos (2012) concluded that producing the type of skilled workforce for this century is such that government alone cannot cater for it, but must engage in partnership with the private sector.

### **10.3.3 Government**

Highlighted in the study is the involvement of the government and its relevant agencies as key stakeholders in 13 partnership categories for effective technical college programme. This is in line with Alam and Hoque (2010), who suggested that some of the roles ascribed to the government in ensuring a relevant, effective and efficient TVET provision in technical colleges include the provision of financial support to instructors and the supply of equipment and infrastructure for training. Others include the provision of incentives to encourage industries to train students, the formulation of policies to streamline industrial training for both staff and students and establishing regional training centres to build student competencies for industry.

### **10.3.4 Community**

Findings from the analysis of findings revealed community as a key stakeholder needed in two partnership categories. According to some of the participating stakeholders, the community can provide land for the government to build institution, serve as a protective measure for securing the facilities provided by the government and encourage their children to be part of the training. Similarly, Ogba (2016) found that communities have donated land for the establishment of schools for the sustainability of Agricultural Science Education. It was also found that community can provide security for the facilities provided by the government for the school. Onduru (2012) agreed with community involvement; in his study it was found that the community can provide for security and a conducive learning environment for technical institutions. As emphasized by Mertineit (2013), the model of intervention possibilities for sustainable development in qualifying vocational training institutions depends on its cooperation with strategically important stakeholders such as communities in the planning and delivery of its programmes. The study also highlighted that partnership with the community shares such benefits as providing land so the government can build the training institution. This finding corroborates Wangatho (2007), who stated that the community is an important stakeholder to be considered in TVET institutional partnership, in that they may have donated the land within which the institution is built, and as such can be part of decision-making process to influence the development of the institution.

### **10.3.5 Non-Governmental Organisations (NGOs)**

The study also revealed three partnership categories involving NGOs in strengthening the existing partnerships. This result is in line with that of Chhun (2016), whose study concludes that partnership between NGOs and other stakeholders alike are based on the beliefs that such collaboration brings benefits to each other. Amutabi (2006) supported this finding as he remarks that NGOs represent a third sector initiative in the globalisation process in which the government is being removed from certain spheres of involvement while at the same time allowing people the freedom to initiate and choose what they want. According to him, this privilege which NGOs have allows them to fill the gaps left by the government in the development process. The finding of the study is also in line with the recommendation of Rufai; Audu et al. (2013) who stated that in TVET, partnerships should be established with NGOs, among others, for the provision of funds for the smooth management and administration of TVET programme regarding the necessary inputs of the programme. Umar and Ma'aji (2010) also concurred with the finding of this study that one of the strategies to procuring facilities in TCs is to partner with such stakeholders as NGOs.

### **10.3.6 International Donor/Financing Community (IFC)**

TVET is capital intensive, the reasons being that its implementation involves the provision of well-equipped workshops and laboratories, service facilities, modern machinery and adequate funding. In confirmation of the statement above, the study revealed two partnership categories involving IFC, the World Bank specifically. It was argued that involving the World Bank as one of the stakeholders would help in strengthening the existing partnerships for a REE technical college programme. According to participants, there is a pressing need to partner with international/intergovernmental agencies such as the World Bank. This finding conforms to the view of Edomwonyi et al. (2016), who pointed out that a multi-stakeholder partnership involving international organisation can help solve the problem of lack of resources needed for the implementation of TVET programmes. Mukirae (2005) also agreed that collaboration with international donor/financing agency such as the World Bank can assist training institutions in the provision of grants for capital development expenditure to enable them expand their capacity and modernize their training.



### **10.3.7 Parents Teachers Association (PTA)**

Findings from the analysis highlighted the involvement of PTA in five partnership categories. Amongst the partnership categories found some presented parents either as individuals or through the instrumentality of PTA as part of the stakeholders needed to strengthen the existing partnerships. Parents, through PTAs, were highlighted as important stakeholders within the TVET community who could also assist in the provision of finance and other training materials needed in the training process. Similarly Umar and Ma'aji (2010) revealed that one of the strategies to improve on TVET provision in TCs is the involvement of PTAs in the provision of some needed facilities in a college's training programme. Findings from the study conducted by Dasmani (2011) in Ghana also supported this, revealing that parents' participation in procurement of additional training materials needed aids the effective teaching and learning in training institutions in Ghana.

The next section presents a discussion on the development of a new REE partnership model.

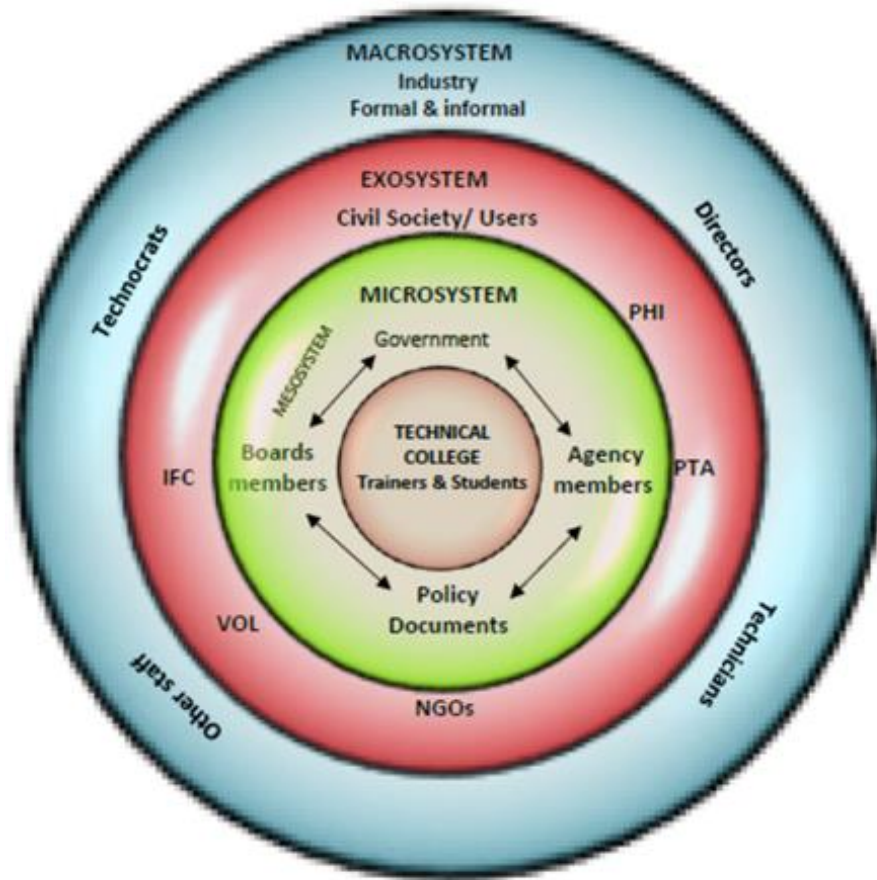
## **10.4 DEVELOPMENT OF A SUSTAINABLE MODEL OF REE PARTNERSHIPS**

Findings from the analyses in Phase 2 of the main study revealed 15 categories of partnerships involving the following stakeholders: academia, industry (formal and informal), government, and non-governmental organisations (NGOs). Others include the community; Parents Teachers Association (PTA); international financing community such as World Bank; philanthropic individuals/organisations and volunteers.

Amongst these 15 partnership categories found, only one of such collaborations reflected the exact three spheres of the THM, namely academia, industry and government, and this is found across all four domains (literature, theoretical framework, pre and post-intervention stages). Furthermore, the findings revealed three partnership categories reflecting the exact characteristics of the QHIM involving four different stakeholders within the users spheres: PTA, NGOs, PAR, and volunteers. This is shared only in the post-intervention domains. Other stakeholders within the users sphere from the pre and post-intervention domains include for pre-intervention community, IFC and PTA, whilst for post-intervention it includes PHI, IFC, PAR, community, and NGOs.

Furthermore, from the summary of findings, it was revealed that new partnership categories were generated, as seen in Table 9.5 of Chapter 9. Five each came from the literature and post-intervention domain, two from the pre-intervention, and none from the theoretical framework. The development of a sustainable model of partnership in TVET provision in GTC Port Harcourt depends on the new categories of partnerships generated. However, it also entails a collection of common stakeholders emerging from the new partnership categories from pre and post-intervention findings as illustrated in Table 9.5 of Chapter 9. This implies that a new model of partnerships for REE TVET provision involves the collaboration between academia (ACA), industry (IND), government (GOV), non-governmental organisations (NGOs), international financing community (IFC), Parents (PAR), Parents Teachers Association (PTA), volunteers (VOL), and philanthropic individuals (PHI).

From these new partnership categories generated, a new model of REE partnership with different interactions and impact levels among various stakeholders was developed through the adopted features of the social ecological theory lens. Figure 10.1 below depicts the nature of the model and the different levels of interaction and influence on academia (technical college).



**Figure 10. 1: Ecological Model of REE partnerships in TVET provision**

The Model in Figure 10.1 above reflects the different levels of interaction between the microsystem, exosystem, and macrosystem, but with different components representing the various stakeholders found within the QHIM. These systems are represented as follows:

**Technical College** Representatives from the college such as the principal, head of departments, teachers, instructors and students.

**Microsystem (Government):** Representatives from Government boards, agencies and parastatals such as directors, project managers, and other staff within the government.

**Exosystem (Users):** Representatives from institutions other than academia, industry and government, such as international financing

community (World Bank, among others), Non-governmental organisations (NGOs), Parents Teachers Associations (PTAs), Volunteers (VOL) and philanthropic individuals (PHI).

**Macrosystem (Industry):** Representatives from both formal and informal industry such as directors, technocrats, technicians, and other staff within the jurisdiction of industry.

#### **10.4.1 Justification of Interaction Levels in the Ecological Model of REE Partnership**

The development of this model is premised on the findings from Phase 1 of the Preliminary study to Phase 2 of the main study. At Phase 3 of the preliminary study, it was revealed that GTC-Port Harcourt recorded the lowest overall index of efficiency of 23%. Furthermore, in Phase 2 of the main study, the analysis in stage one revealed that GTC-PH has two different partnership categories in existence. In stage two, it was shown that the College had government and IFC as its two partners. It is notable that the College is involved in a partnership yet it recorded a low efficiency. This was further confirmed at the pre-intervention stage, when participating stakeholders listed 17 factors that contributed to the low efficiency recorded by the College. The implication at this stage is that there is poor interaction between the College and the government stakeholder within the microsystem level. It was also revealed that the College was involved in partnership with the international financing community (IFC), yet had low efficiency. This also shows poor influence of the IFC on the College at the Exosystem level. From both experiences, one can deduce that such partnerships had little or no impact of increasing the efficiency level of the College. However, during the pre-intervention stage, participating stakeholders clamoured for industry involvement in the strengthening the existing partnership. This was confirmed in the seven new partnership categories found at the pre and post-intervention stages, which saw the industry stakeholder coming first. Additionally, in all seven new partnership categories found, both industry and government appeared in six, whilst academia, and other stakeholders from the civil society/users each had five appearances. This argues for collaboration between academia, industry, government, and civil society/users.

From the foregoing, from the findings of this study, one can conclude that a sustainable model for REE partnerships for an efficient TVET provision in GTC-PH entails collaboration involving the four institutional spheres of the QHIM, but at different interaction level as reflected in the Ecological model of REE partnership in TVET provision shown in Figure 10.1 above.

The Ecological Model of REE partnership justifies the fact that there is need for a paradigm shift from a government-dominated key role in TVET provision to an industry-led strategy. In doing this, the problem of skills mismatch which has resulted from a government led supply-driven TVET approach will be totally eradicated, thereby giving room for the production of graduates with the requisite skills for gainful employment in the industry.

This chapter presented a discussion of the findings based on results revealed in the preliminary and main part of the Study. The section began with the preliminary findings and concluded with discussions of the development of the new model of REE partnerships in Phase 2 of the main study.

The next and final chapter of the study presents the conclusion, implications of the findings, and contribution which the study is making to the body of existing knowledge around the subject under scrutiny.

## **CHAPTER 11**

### **CONCLUSION, IMPLICATIONS OF THE FINDINGS AND CONTRIBUTION TO KNOWLEDGE**

In Chapter 10 of the study, the discussion of findings emanating from the analyses of data generated in the study was presented. Also presented in the last chapter was a discussion on the development of a new model of REE partnership in TVET provision in Nigerian technical colleges, using Ecological System Theory.

This chapter presents the concluding remarks to the study, implications of the findings, and contribution which this study is making to the body of knowledge.

I begin the section with the concluding remarks, and end with the contribution which the study makes to knowledge.

This section presents the concluding remarks to the thesis, which explored TVET provision in Nigerian technical colleges across six geopolitical zones, with a focus on exploring the Relevance, Effectiveness, and Efficiency (REE) of stakeholder partnerships using Community-based participatory action research (CBPAR). This was carried out by reflecting on the overview of the entire study with a consideration on the various chapters as presented below.

#### **11.1 OVERVIEW OF THE STUDY**

The first chapter of the study outlined the orientation of this thesis based on the subject of the study by providing insights on the context and concept of TVET, contextual background, and challenges facing TVET in Nigeria. The rest included the statement of the problem, purpose of the study, research questions, and significance of the study. The frameworks employed in the study were presented in Chapter 2. This was followed by Chapter 3, where review of related literature was presented. Chapter 4 of the study highlighted the methodology employed to gather and analyse data generated in the study. The analyses of data generated in the preliminary study were presented in Chapter 5, whilst those of the main study were in 6, 7, 8, and 9. Discussions of findings were presented in

Chapter 10. The conclusion, implications of findings and contributions to knowledge were outlined in Chapter 11.

### **11.1.1 Reflection on Contextual Background**

On the global scene, TVET has been considered a popular aspect of education to combat the rising wave of poverty and unemployment, and to address the changing skills need of the workplace and the technological explosion (AU, 2007; Hilal, 2012; Palmer, 2009; UNESCO, 2004; Usman, Celement, & Raihan, 2013; Wang, 2012). However, this aspect of education has been neglected and its provision has attracted little emphasis, which has resulted in challenges such as poor funding, lack of workshop facilities; dearth/shortage of qualified training personnel; and overcrowded classroom, among others. Several policy interventions have been put in place, but to no avail. Hence, this study explored the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian technical colleges using Community-based participatory action research (CBPAR). The aim was to strengthen and develop a new model of partnership for relevant, effective and efficient TVET provision in Nigerian technical colleges.

### **11.1.2 Reflection on the Frameworks**

Four frameworks were employed in the study – one analytical, and three theoretical. The analytical framework was used to evaluate the internal efficiency of TVET provision from few selected technical colleges in third phase of the Preliminary study. Of the remaining three theoretical frameworks, two, namely THM and QHIM, were employed in the exploration of partnerships in Phase 1 and Phase 2 of the Main Study and the EST was used in the development of a new model of REE partnership in TVET provision. The last framework – EST, which guided the development of the model, was introduced due to limitations in the THM and QHIM. The THM advocated collaboration between three institutional spheres, namely academia, industry and government, whilst the QHIM is an extension of THM by the inclusion of the fourth institutional sphere known as civil society/users. Both the THM and QHIM advocate some sort of equal level interaction amongst the aforementioned stakeholders. This feature thus limits their application in this

study. Hence, the introduction of the EST with varied levels of interaction, as reflected in the findings of this study.

### **11.1.3 Reflection on Review of Related Literature**

Both empirical and non-empirical articles relating to TVET provision and partnership from different parts of the world were reviewed. This was done in order to gather the necessary information on recent developments. From the studies reviewed, it was found that most countries within and outside Africa are faced with issues of gross neglect and of low emphasis on TVET provision. Furthermore, it was also found in the study reviewed that one way to improve the quality of TVET provision, as obtains in countries with best practices, is to embark on stakeholder partnerships involving academia, industry, government and other key players within the sector.

### **11.1.4 Reflection on Research Methodology**

A sequential mixed method design involving community-based participatory action research (CBPAR) was employed for gathering and analysing data generated in the study. Data for Phase 1 and Phase 2 of the preliminary study were collected and analysed statistically using Microsoft Excel sheet and bar charts, whilst that of Phase 3 was analysed using simple percentages in line with the analytical tool adopted. Data for the main study, which was based on mixed methods for Phase 1 and a quantitative approach for Phase 2, were collected through semi-structured questionnaires, pre and post-minutes of meetings, personal interviews and focus group discussions respectively. The analysis for the first stage of Phase 1 was done statistically, whilst that of stage two and of Phase 2 were analysed thematically.

### **11.1.5 Reflection on Response to the Research Questions (major findings)**

Findings from Phase 1 of the Preliminary Study revealed that there are few technical colleges sited across the six geopolitical zones. Besides, there is no even distribution of these colleges across States in the zones – it was noted that there was no technical college sited in Zamfara State in the North-West geopolitical zone. In Phase 2, the findings revealed a highly disproportionate ratio, ranging from 1:138 to 1:70, in technical college provision compared to provision of general education schools. On the other hand, for the last phase in the



preliminary study, findings on the level of efficiency of a few selected technical colleges revealed that only two zones, namely North-Central and South-West, recorded above 50%.

Findings from the first phase of the main study revealed that out of the 22 technical colleges surveys across four geopolitical zones, only seven (32%) were involved in partnerships, whilst 15 (68%) were identified as not in any form of collaboration. From the seven technical colleges identified to be involved in partnership, five were in multiple stakeholder partnership. It was also indicated that none of these partnerships possessed the exact features of either the THM or the QHIM. Furthermore, findings from Phase 2 of the Main Study revealed 17 factors as the cause of the low efficiency recorded in the College. Findings on how to strengthen the existing partnerships revealed the collaboration between academia, industry, government and stakeholders from civil society. They also include groups such as the international financing community (World Bank, among others), non-governmental organisations (NGOs), Parents Teachers Associations (PTAs), volunteers (VOL) and philanthropic individuals (PHI). In addition, 12 new partnership categories were generated, five each from the literature and post-intervention domain, and two from the pre-intervention stage. From the newly generated partnership categories, a new model of REE partnership involving different levels of interaction between academia, industry, government, and civil society stakeholders was developed, using the EST.

## **11.2 CONTRIBUTION TO KNOWLEDGE**

This section presents the contribution this study makes to existing literature on the relevance, effectiveness and efficiency of stakeholder partnerships in TVET provision. Three major areas are considered, the theoretical framework, literature reviewed, and design adopted. In the following section, I present these contributions, starting with the theoretical framework.

### **11.2.1 Theoretical Framework**

This research was based on three theories, namely THM, QHIM, and EST. The first two theories were employed to explore stakeholders for effective TVET provision in GTC-PH, whilst the EST was used in the development of a new model of REE partnership. Although the findings highlighted the need for partnerships amongst academia, industry and government in the THM for effective TVET provision in GTC-PH, it also indicated the need

to involve other stakeholders from civil society/users in the QHIM to catalyse TVET provision. The implication is that in the case of a developing context such as Nigeria, with a complex setting, the simplified nature of the Triple Helix is not sufficient to cater for effective TVET provision in TCs, but requires input from other stakeholders such as NGOs, international financing institutions, PTA, communities, philanthropic individuals, and volunteers (Ranga & Etzkowitz, 2013). Besides, the framework only described each of the three institutions as block entities (Ranga & Etzkowitz, 2013), but in this study, the findings show that each of these institutions are made of different components which can be altered to influence the extent of relationship amongst the three spheres (Ranga & Etzkowitz, 2013; Razak & Saad, 2011). The study also revealed that collaboration amongst stakeholders is at different levels, as depicted in the ecological model of REE partnerships. Hence, the study thereby revealed the prominence of industry as the key stakeholder needed to drive the production of the skilled graduates needed for industrial development, as opposed to literature and policy documents that portray government as the major key stakeholder in TVET provision. Contrary to the conventional interpretation of the ecological model, where the government and its components operate within the macrosystem level, the findings of this study through the EST highlights that a quality TVET is only conceivable when the industry and its components occupy the macrosystem domain. Although, this somehow, negates the original interpretation of the Ecological model according to Bronfenbrenner, but it however positions the industry at the macrosystem level from where the best quality of TVET delivery can be achieved. with such illumination in this research, there is an advancement in knowledge in the framework employed, which is the contribution this study has made theoretically.

### **11.2.2 Literature on Partnership for TVET Provision**

The review of related literature on the subject of this study show that most studies executed only explored the issue of TVET provision in isolation, leaving out the aspect of partnerships. Hence, none of the studies covered TVET provision alongside stakeholder partnership in a single study, as opposed to the current study, which focused on both. Furthermore, from the perspective of this study, there is no literature from Nigeria on the subject covered in this study. More so, the findings of this study show that 12 new partnership categories emerge across three domains namely, five each in the literature and post-

intervention, whilst two emerged in the pre-intervention domains. By these 12 new partnership categories found in the three domains, it shows that this study contributes to the body of existing knowledge on debates around the discourse on TVET provision with regard to stakeholder partnerships in Nigeria, Africa and beyond.

### **11.2.3 Mixed Method Design**

From related literature of previous studies reviewed, it was found that all studies adopted either quantitative, qualitative or mixed method approaches in exploring the subject of TVET provision holistically. In this study, an explanatory sequential mixed method design, which adopted the use of surveys in the quantitative phase and an intervention CBPAR approach which employed the use of meeting minutes, personal interviews and focus group discussions in the qualitative phase of the study. In doing this, one can conclude that, the study has been able to shed some useful insight into the debate on TVET provision and stakeholder partnerships beyond what is achievable using mere mixed method design and not involving the CBPAR intervention approach. The reasons being that, all methodological literature explored, none laid claim on the application of CBPAR in exploring TVET provision alongside the relevance, effectiveness and efficiency of stakeholder partnerships within the Nigerian context, or elsewhere internationally. This, by implication puts this study at the forefront as advancing knowledge methodologically in the discourse of TVET provision and stakeholder partnerships.

## **11.3 IMPLICATIONS OF THE FINDINGS**

This study has major implications and insights for collaboration between academia, industry and government in TVET provision, which could be used for TVET policy renewal and reformation in Nigeria and other developing countries in Africa and beyond, to strengthen their existing TVET policy and practice.

### **11.3.1 Implications for Academia**

Part of the findings for the study highlighted teacher deficiency in pedagogical knowledge and skills, which can be mitigated through TVET provider-industry partnerships. Creating partnerships with stakeholders such as industry can help align curriculum content and teaching methodologies to ensure learning outcomes are congruent with the human capital needs of specific industries (Bukit, 2012; Watters, Pillay, & Flynn, 2016). One of the

industry employers remarked that, through TC-industry partnerships, the college can enjoy facilities built by industry which are too expensive for the college to acquire. TC teachers in the study had their knowledge enhanced as a result of industry's involvement in the CBPAR programme. Guthrie, Harris, Simons, and Karmel (2009) argue that relationships between academia and industry creates an avenue for trainers to enhance their knowledge and skills to become more innovative, and to strengthen their ability to work and the organisational culture. In addition, linkages between TVET colleges and industry employers empower TVET trainers through access to the latest technologies in use in industry, attainment of practical skills, positive professional attitudes, information to establish their teaching modules and the gradual improvement of teachers' understanding in working with industry (Bukit, 2012). Analysis of the findings also shows that industry provided the equipment used in the implementation of the CBPAR intervention programme for both trades researched, since these materials were not available in the College. It is noted that TVET institutions depend on industry as an avenue of accessing the latest technology and practices, as well as indicating the level and types of competencies currently required (Bukit, 2012). One of the TVET trainers stressed that partnership with industry will create room for TC students to embark on industrial training. One of the components of the TC programme is to be engaged in industrial attachment, where theory learnt in the College is put into practice. Bukit (2012) remarks that one of the direct benefits industry provides for student is the space to observe their practices through industrial attachment/training programmes, which enable them to learn about appropriate working behavior and culture.

### **11.3.2 Implications for Industry**

Findings from the study suggests that industry involvement in TC programmes plays important roles in influencing the content of TC curriculum to better align with what is obtainable in industry, provide access to facilities not available in the colleges, and also train and retrain TVET trainers (Grunwald, 2008). To the industry employer, this is aimed at producing TC graduates with skills that guarantees efficiency to maximize production in industry (Watters et al., 2016), thereby reducing the effect of skills shortages which results in industry being less productive, due to its inability to fill vacancies or needs with the right skilled personnel (Neal, 2011). More so, the idea of retraining these graduates after

employment thereby incurring more costs will be minimised if not completely eradicated. Analysis of the findings from both employers' perspective indicates that the students were all willing to participate since there could link the practical to what they enrolled for. Establishing partnerships with TVET training institutions creates avenues for industrial attachment for students, thereby enabling industry to observe students' practices, which help industry in choosing their prospective workers once they have completed their TVET programme (Bukit, 2012).

### **11.3.3 Implications for Government**

One major component of a country with an effective TVET system is a well-established partnership framework between training providers and relevant stakeholders from other sectors, as obtains in nations such as Denmark, Belgium, France, Germany, and Netherlands (Watters et al., 2016). Findings from this study show that TVET provision in Nigerian TCs experiences huge challenges ranging from both human and material resources. It was also revealed that 15 (68%) out of 22 TCs surveyed are not in any form of partnership. This finding suggests that there is no policy framework in place that encourages partnerships between TCs and stakeholders from other sectors. However, the findings of the CBPAR intervention also show that collaboration amongst multiple stakeholders will go a long way in alleviating the challenges of quality TVET provision. In order to mitigate the problem of ineffective and inefficient TVET provision, there is need for a policy reform from government encouraging multi-stakeholder partnership to ensure resources are pulled together to achieve high quality technical education institutions (Edomwonyi et al., 2016). According to Watters et al. (2016), an all-inclusive and balanced policy approach to other stakeholders' engagement in education would likely articulate the economic, employment, educational and sociocultural benefits and resist short-term targeted strategies that are vulnerable to industry types, economic fluctuations and funding ability. The government needs to invest in TVET programmes, mobilise the private sector to participate in the quality delivery of TVET programmes, give legislative support to national TVET policies, monitor and evaluate performance of TVET and apply corrective measures where necessary (Aworanti, 2015b). As suggested by Joo (2013), government should encourage, support and promote school-industry partnership and establish a system guided by the government and coordinated by industrial organisations to implement students' industrial training and to

strengthen curriculum development, admissions and employment, instructor training, and employee training.

#### **11.4 LIMITATIONS OF THE FINDINGS AND SUGGESTIONS FOR FURTHER STUDIES**

TVET provision in technical colleges is generally very broad. Whilst this study focused on TVET provision in Nigerian technical colleges based on two Engineering trades, namely Electrical Installation and Maintenance and Motor Vehicle and Mechanics trades including only the principal, HOD and teacher from the same trades, there is a need to carry out a similar study on the remaining 32 trades.

The study explored the efficiency of TVET provision in 22 out of 115 technical colleges in four geopolitical zones. There would be need to do a similar study in all 155 Colleges across the six geopolitical zones of Nigeria in order to ascertain the efficiencies of TVET provision in the remaining two zones.

Furthermore, the study aimed to understand the type of partnership that works for efficient TVET provision in technical colleges in Nigeria. Consequently, the study employed the CBPAR approach to intervene. Since the preliminary phase of the study covered a wider scope, I would have also designed this phase involving CBPAR to technical colleges in other states and zones. Mores so, the study would have involved industry employers from other fields of study other than the two Engineering Trades selected, and the duration would have been more than the two months the study was carried out. However, due to insufficient time and resources, the study was limited to one TVET institution, that is, the Government technical college, Port Harcourt, in South-South Nigeria. Hence, the findings apply to this institution and the two Trades only. Furthermore, the findings may not be generalised to technical colleges in other states and zones than the one studied. Therefore, there is a need to extend a similar study to every technical college across different states in the six geopolitical zones of Nigeria.

Furthermore, this study conducted in GTC, PH, was based on the specific situation that the college has an existing partnership with stakeholders from the government and civil

society sector. It is therefore, recommended that a further study be conducted involving technical colleges in partnership with industry stakeholders, to compare such findings.

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**APPENDIX A:  
LETTER TO TECHNICAL COLLEGE PRINCIPAL**



The Principal  
Federal/State/Private Technical College  
Nigeria

Dear Sir/Madam,

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR COLLEGE**

My name is Dagogo William Legg-Jack. I am a Technology Education PhD candidate studying at the University of KwaZulu-Natal, Durban, South Africa.

My research topic is: **Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges: Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR).** The study aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR).

I hereby apply for permission to conduct my research in Technical Colleges in four (4) geopolitical zones of Nigeria. Data will be collected from Technical College Principals, HODs Teachers, and Employers using questionnaires and CBPAR which will involve audio or video recording. Any of the participants who decide to be the part of my study will be required to fill in the consent form. Please note that their participation is voluntary.

You are requested to kindly fill in the attached declaration and consent form which acknowledges the permission granted to me to undertake my research in in the zones.

I guarantee that the information gathered will be used for the purpose of the research only. Technical College Principals, HODs and Teachers may withdraw from participating in the study as it is voluntary.

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:

Your cooperation will be highly appreciated

Yours sincerely

---

Dagogo William Legg-Jack

**Dagogo William Legg-Jack**  
Science and Technology Education Cluster,  
School of Education, Edgewood Campus,  
University of KwaZulu-Natal,  
Durban,  
South Africa  
Cell: +27 (0)74 335 0613  
Email: [dagswilliam@yahoo.co.uk](mailto:dagswilliam@yahoo.co.uk)  
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My supervisor, **Dr. Busisiwe Alant**  
Department of Science and Technology,  
School of Education, Edgewood Campus,  
University of KwaZulu-Natal,  
Durban,  
South Africa  
Tel: +27 (0)312607606  
Email: [alantb@ukzn.ac.za](mailto:alantb@ukzn.ac.za)

**DECLARATION BY THE PRINCIPAL**

I \_\_\_\_\_ the Principal, \_\_\_\_\_  
\_\_\_\_\_ give permission to Mr Dagogo William  
Legg-Jack to collect data for his research in the above-named technical college.

---

**SIGNATURE/STAMP OF THE PRINCIPAL**

---

**DATE**

**APPENDIX B:  
INFORMED CONSENT LETTER TO TECHNICAL COLLEGE  
PRINCIPALS**



School of Education  
Edgewood Campus  
Private Bag X03  
Ashwood 3605  
November 2015

Dear Principal,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: “**Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)**”. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this study, as illustrated below:

**Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET institutions from four geopolitical zones. Data for the first two research questions shall be collected

through desktop review, whilst the third question shall be via the administration of closed-ended questionnaires to Principals, HODs, and Teachers.

**MAIN STUDY: QUANTITATIVE AND QUALITATIVE**

The main study addresses two research questions. The first on existence and nature of partnership, whereas the second focuses on using CBPAR. Data for the first research question on partnership will be collected using semi-structured questionnaire administered to Principals, HODs, and Teachers. On the other hand, data will be generated from representatives from TCs, Industry and Government using focus group discussions photo voice, logbook, and observation among others

Please note that:

- The research aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR)
- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a community population member’s opinion.
- If you are interviewed, the interview may last for approximately an hour and may be split depending on your preference.
- If you are participating in the study as a Principal, HOD, Teacher, you may be asked questions, or asked to give your opinions, as part of a group meeting which may take up to 2 hours.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage in the Department of Science and Technology, School of Education, Edgewood campus, University of KwaZulu-Natal and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- You may be asked to take part in a telephonic interview, or interview via online teleconferencing (e.g. Skype), if so, you will be given a copy of the questions to study in advance of the interview should you desire this.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded using the following equipment:

<b>Recording equipment to be used in the study</b>	<b>I am willing</b>	<b>I am not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:



---

**Dagogo William Legg-Jack** (Researcher)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
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Cell: + 27 074 335 0613, +234 803 759 4115  
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Tel: +27 (0)31 260 7606 Cell: +27 739 479 893  
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E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**

**APPENDIX C:  
INFORMED CONSENT LETTER TO ENGINEERING TRADES  
HEADS OF DEPARTMENT (HOD)**



Dear HOD,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: **“Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)”**. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this study, as illustrated below:

**Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET

institutions from four geopolitical zones. Data for the first two research questions shall be collected through desktop review, whilst the third question shall be via the administration of closed-ended questionnaires to Principals, HODs, and Teachers.

**MAIN STUDY: QUANTITATIVE AND QUALITATIVE**

The main study addresses two research questions. The first on existence and nature of partnership, whereas the second focuses on using CBPAR. Data for the first research question on partnership will be collected using semi-structured questionnaire administered to Principals, HODs, and Teachers. On the other hand, data will be generated from representatives from TCs, Industry and Government using focus group discussions photo voice, logbook, and observation among others

Please note that:

- The research aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR)
- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a community population member’s opinion.
- If you are interviewed, the interview may last for approximately an hour and may be split depending on your preference.
- If you are participating in the study as a Principal, HOD, Teacher, you may be asked questions, or asked to give your opinions, as part of a group meeting which may take up to 2 hours.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage in the Department of Science and Technology, School of Education, Edgewood campus, University of KwaZulu-Natal and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- You may be asked to take part in a telephonic interview, or interview via online teleconferencing (e.g. Skype), if so, you will be given a copy of the questions to study in advance of the interview should you desire this.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded using the following equipment:

<b>Recording equipment to be used in the study</b>	<b>I am willing</b>	<b>I am not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:

---

**Dagogo William Legg-Jack** (Researcher)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
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E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**

**APPENDIX D:  
INFORMED CONSENT LETTER TO ENGINEERING  
TRADES TEACHERS**



Dear Teacher,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: **“Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)”**. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this study, as illustrated below:

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1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET

institutions from four geopolitical zones. Data for the first two research questions shall be collected through desktop review, whilst the third question shall be via the administration of closed-ended questionnaires to Principals, HODs, and Teachers.

**MAIN STUDY: QUANTITATIVE AND QUALITATIVE**

The main study addresses two research questions. The first on existence and nature of partnership, whereas the second focuses on using CBPAR. Data for the first research question on partnership will be collected using semi-structured questionnaire administered to Principals, HODs, and Teachers. On the other hand, data will be generated from representatives from TCs, Industry and Government using focus group discussions photo voice, logbook, and observation among others

Please note that:

- The research aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR)
- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a community population member’s opinion.
- If you are interviewed, the interview may last for approximately an hour and may be split depending on your preference.
- If you are participating in the study as a Principal, HOD, Teacher, you may be asked questions, or asked to give your opinions, as part of a group meeting which may take up to 2 hours.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
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- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- You may be asked to take part in a telephonic interview, or interview via online teleconferencing (e.g. Skype), if so, you will be given a copy of the questions to study in advance of the interview should you desire this.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded using the following equipment:

<b>Recording equipment to be used in the study</b>	<b>I am willing</b>	<b>I am not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:

---

**Dagogo William Legg-Jack** (Researcher)

Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Cell: + 27 074 335 0613, +234 803 759 4115  
Email: [dagswilliam@yahoo.co.uk](mailto:dagswilliam@yahoo.co.uk)

**Dr. Busisiwe Alant** (Supervisor)

Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Tel: +27 (0)31 260 7606 Cell: +27 739 479 893  
Email: [alantb@ukzn.ac.za](mailto:alantb@ukzn.ac.za)

You may also contact the **Research Office** through:

P. Mohun  
HSSREC Research Office,  
Tel: 031 260 4557/4609  
Email: [HssecHumanities@ukzn.ac.za](mailto:HssecHumanities@ukzn.ac.za)  
E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**

**APPENDIX E:  
INFORMED CONSENT LETTER TO MVM AND EIM TRADE  
STUDENTS**



Dear Student,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: **“Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)”**. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this study, as illustrated below:

**Preliminary Study**

1. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
2. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
3. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

1. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
2. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET



institutions from four geopolitical zones. Data for the first two research questions shall be collected through desktop review, whilst the third question shall be via the administration of closed-ended questionnaires to Principals, HODs, and Teachers.

**MAIN STUDY: QUANTITATIVE AND QUALITATIVE**

The main study addresses two research questions. The first on existence and nature of partnership, whereas the second focuses on using CBPAR. Data for the first research question on partnership will be collected using semi-structured questionnaire administered to Principals, HODs, and Teachers. On the other hand, data will be generated from representatives from TCs, Industry and Government using focus group discussions photo voice, logbook, and observation among others

Please note that:

- The research aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR)
- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a community population member’s opinion.
- If you are interviewed, the interview may last for approximately an hour and may be split depending on your preference.
- If you are participating in the study as a Principal, HOD, Teacher, you may be asked questions, or asked to give your opinions, as part of a group meeting which may take up to 2 hours.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage in the Department of Science and Technology, School of Education, Edgewood campus, University of KwaZulu-Natal and destroyed after 5 years.
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- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- You may be asked to take part in a telephonic interview, or interview via online teleconferencing (e.g. Skype), if so, you will be given a copy of the questions to study in advance of the interview should you desire this.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded using the following equipment:

<b>Recording equipment to be used in the study</b>	<b>I am willing</b>	<b>I am not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:

---

**Dagogo William Legg-Jack** (Researcher)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Cell: + 27 074 335 0613, +234 803 759 4115  
Email: [dagswilliam@yahoo.co.uk](mailto:dagswilliam@yahoo.co.uk)

**Dr. Busisiwe Alant** (Supervisor)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
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E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**

**APPENDIX F:  
INFORMED CONSENT LETTER TO TECHNICAL COLLEGE  
GRADUATES EMPLOYER**



Dear Employer,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: **“Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)”**. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this **Preliminary Study**

4. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
5. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
6. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

3. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
4. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET institutions from four geopolitical zones. Data for the first two research questions shall be collected

through desktop review, whilst the third question shall be via the administration of closed-ended questionnaires to Principals, HODs, and Teachers.

**MAIN STUDY: QUANTITATIVE AND QUALITATIVE**

The main study addresses two research questions. The first on existence and nature of partnership, whereas the second focuses on using CBPAR. Data for the first research question on partnership will be collected using semi-structured questionnaire administered to Principals, HODs, and Teachers. On the other hand, data will be generated from representatives from TCs, Industry and Government using focus group discussions photo voice, logbook, and observation among others

Please note that:

- The research aims to explore the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships in the provision of Technical and Vocational Education and Training (TVET) in Nigerian Technical Colleges using Community-Based Participatory Action Research (CBPAR)
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- If you are interviewed, the interview may last for approximately an hour and may be split depending on your preference.
- If you are participating in the study as a Principal, HOD, Teacher, you may be asked questions, or asked to give your opinions, as part of a group meeting which may take up to 2 hours.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage in the Department of Science and Technology, School of Education, Edgewood campus, University of KwaZulu-Natal and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
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<b>Recording equipment to be used in the study</b>	<b>I am willing</b>	<b>I am not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

If you wish to discuss this further with me or wish to understand more about the research study, I can be contacted at:

---

**Dagogo William Legg-Jack** (Researcher)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Cell: + 27 074 335 0613, +234 803 759 4115  
Email: [dagswilliam@yahoo.co.uk](mailto:dagswilliam@yahoo.co.uk)

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Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
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E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**

**APPENDIX G  
INFORMED CONSENT LETTER TO SEEFOR AND SCHOOLS  
BOARD REPRESENTATIVES (GOVERNMENT  
REPRESENTATIVES)**



Dear Government Representatives,

**RE- REQUEST FOR YOUR CONSENT TO PARTICIPATE IN MY STUDY**

I am a registered PhD student at the above-mentioned institution, currently conducting a research study entitled: **“Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges (TCs): Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships using Community-Based Participatory Action Research (CBPAR)”**. I am humbly requesting you to be a participant in this study.

The study will be conducted in three phases, addressing the three research questions informing this study, as illustrated below:

**Preliminary Study**

7. What is the extent of TVET provision across the six geopolitical zones of Nigeria?
8. How does the TVET provision within these six geographical zones compare to the provision of general education schools?
9. What is the level of efficiency of a selected few TVET institutions across these geographical zones in Nigeria?

**Main Study**

5. Are the TVET institutions surveyed in any form of partnership with any organisation? If so, what type of partnership are they involved in?
6. Using CBPAR, how do we strengthen and develop a new model of partnership for REE TVET provision in Nigerian technical colleges?

The phases and stages are outlined below:

**PRELIMINARY STUDY: QUANTITATIVE**

This phase mainly will address the first three research questions which explores the provision of TVET in six (6) geopolitical zones of Nigeria with regard to Technical Colleges. Comparison of TVET provided institutions and general education schools, and the efficiency of selected TVET

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Photographic equipment		
Video equipment		

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**Dagogo William Legg-Jack** (Researcher)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Cell: + 27 074 335 0613, +234 803 759 4115  
Email: [dagswilliam@yahoo.co.uk](mailto:dagswilliam@yahoo.co.uk)

**Dr. Busisiwe Alant** (Supervisor)  
Department of Science and Technology,  
School of Education, Edgewood campus,  
University of KwaZulu-Natal.  
Tel: +27 (0)31 260 7606 Cell: +27 739 479 893  
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E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

---

### **DECLARATION**

I \_\_\_\_\_ (full name of participant)  
hereby confirm that I understand the contents of this document and the nature of the research project,  
and I consent to participating in the research project. I understand that I am at liberty to withdraw  
from the project at any time, should I so desire.

\_\_\_\_\_  
**SIGNATURE OF PARTICIPANT**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**FULL NAME AND SURNAME OF PARTICIPANT (PLEASE PRINT)**



## APPENDIX H:

### QUESTIONNAIRE TO PARTICIPANTS: PRINCIPAL/ENGINEERING TRADE HOD/TEACHER

The questionnaire consists of three parts: PARTS A; B and C. PART A deals with biographical information of the participant and the institution. PART B deals with the nature of TVET provision by your Technical Colleges. PART C explores whether your institution is involved in any partnerships and if so, to explore the nature of the partnership, in respect of its relevance, effectiveness and efficiency.

#### PART A

Please indicate your opinion by marking X in the appropriate boxes provided below. You may wish to state your opinion in writing where what you wish to say is not represented in table below.

<b>NAME OF PARTICIPANT:</b>					
<b>POSITION</b>	<b>PRINCIPAL</b>	<b>ET HOD</b>		<b>ET TEACHER</b>	
<b>GENDER:</b>	<b>FEMALE</b>			<b>MALE</b>	
<b>NAME OF COLLEGE:</b>					
<b>STATE:</b>					
<b>TYPE OF COLLEGE:</b>	<b>FEDERAL</b>	<b>PRIVATE</b>	<b>STATE</b>	<b>OTHERS Specify</b>	
<b>NO. OF YEARS WORKING AT THE SCHOOL</b>					
<b>QUALIFICATIONS:</b>					
<b>INSTITUTIONS WHERE QUALIFICATIONS WERE OBTAINED</b>					
<b>TOTAL ENROLMENT NUMBERS FOR THE PAST 5 YEARS FOR ENGINEERING TRADES</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>IN YOUR OPINION, WOULD YOU SAY THAT ENGINEERING TRADES ARE WELL PROVIDED FOR IN YOUR COLLEGE?</b>					
<b>YES</b>			<b>NO</b>		
<b>PLEASE GIVE THE REASONS FOR THE RESPONSE YOU'VE GIVEN ABOVE.</b>					

**PART B: TVET PROVISION IN NIGERIAN TECHNICAL COLLEGES**

Facets of interest (FoI)	Sub (FoI)	Description of indicator	Definition	Your Response	Indicate Source of Data/ Evidence
<b>1. Trainees</b>	1.1	Availability of annual enrolment targets	Yes or No		
	1.2	Ratio of enrolments to available training places	Enrolments / available training places		
	1.3	Trainee course completion rate	No. completed / Enrolments		
	1.4	Trainee pass rate	No. of passes /Enrolments		
	1.5	Trainee retention rate	[1 – (No. of dropped out / Enrolments)]		
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1		
<b>2. Staff Utilization</b>	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre		
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff		
	2.3	Academic staff/trainee ratio	Size of academic staff : Total trainees		
	2.4	Non-academic staff/trainee ratio	1 – P where P = [Size of non-academic staff / Total trainees]		
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1		
<b>3. Training Courses (TCs)</b>	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted		
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted		
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted /Total TCs planned		
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned		
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned		
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted		
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted		
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1		
<b>4. Training Facilities &amp; Utilization</b>	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully = 1		
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)		
	4.3	Extent of adequacy of learning resource materials	- do -		
	4.4	Extent of adequacy of training aids for use	- do -		
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -		
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -		
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)		
	4.8	Extent of utilization of machinery	- do -		
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -		
<b>5.</b>	5.1	Availability of financial budget	Yes or No		

<b>Financial Performance</b>		for the institution			
	5.2	Availability of financial budget for each TC	Yes or No		
	5.3	Whether information on cost per TC available for each TC	Yes or No		
	5.4	Whether information on cost per trainee available for each TC	Yes or No		
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1		
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation		
	5.7	Budgetary utilization - 2: proportion of received funds used	Total expenditure/ Total income received		
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1		
5.9	Revenue generation	(Total income –Planned income) / Total expenditure			
<b>6. Performance Management</b>	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1		
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1		
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1		
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1		
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1		
<b>7. Service Facilities</b>	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1		
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1		
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1		
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1		
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1		

8. Any additional comments \_\_\_\_\_

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**PART C: INFORMATION ON THE TYPE OF PARTNERSHIP IN EXISTENCE**

S/N	QUESTION	RESPONSE			
1.	Is your college involved in any partnership?	YES <input type="checkbox"/>	NO <input type="checkbox"/>		
2.	If yes, please identify the type of partnerships by listing them here	Partner A	Partner B	Partner C	Partner D
<b>ROLE IDENTIFICATION</b>					
3	<b>Your Institutions' role</b>	Partner A's Role	Partner B's Role	Partner C's Role	Partner D's Role
4	In your opinion, how relevant/effective/efficient (REE) are these partnerships?				
5	In your opinion, are these partnerships sustainable?				
6	If no, what is the challenge?				
7	If yes, what sustains those partnerships?				
8	If yes, how are these partnerships being sustained?				

9. Any additional comments:

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**APPENDIX I:  
RESPONSES FROM STATE OWNED TECHNICAL COLLEGES IN SOUTH-SOUTH**

GEOPOLITICAL ZONE				SOUTH-SOUTH RESPONDENTS FROM DIFFERENT STATES														
				AKWA IBOM			CROSS RIVER			DELTA			EDO			RIVERS		
Facets of Interest	Description of indicator	Definition	P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
1. Trainees (T)	1.1	Availability of annual enrolment targets	Yes or No	1.000	1.000	1.000	-	0.000	-	0.000	1.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
	1.2	Ratio of enrolments to available training places	Enrolments / available training places	0.080	0.333	0.333	-	0.000	-	1.000	1.000	1.000	1.000	1.000	0.000	0.200	0.010	0.000
	1.3	Trainee course completion rate	No. completed / Enrolments	0.340	0.000	0.000	-	0.400	-	0.667	0.667	0.667	0.000	0.000	0.000	0.000	0.000	0.000
	1.4	Trainee pass rate	No. of passes /Enrolments	0.000	0.000	0.000	-	0.780	-	0.333	1.000	1.000	0.000	0.000	0.000	0.700	0.000	0.780
	1.5	Trainee retention rate	[1 – (No. of dropped out / Enrolments)]	0.340	0.000	0.000	-	0.600	-	0.650	0.600	0.650	0.000	0.000	0.000	0.015	0.000	0.500
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1	1.000	1.000	1.000	-	0.100	-	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
<b>Efficiency of Facet: [T] (%)</b>				<b>46</b>	<b>39</b>	<b>39</b>	-	<b>38</b>	-	<b>44</b>	<b>71</b>	<b>55</b>	<b>50</b>	<b>50</b>	<b>33</b>	<b>15</b>	<b>50</b>	<b>21</b>
2. Staff Utilization (SU)	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre	0.000	0.000	0.000	-	0.810	-	0.500	0.000	0.200	0.000	0.000	0.000	0.800	0.000	0.300
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff	0.720	0.340	0.000	-	0.900	-	0.556	0.800	0.950	0.250	0.875	0.250	0.938	0.000	0.300
	2.3	Academic staff/trainee ratio	Size of academic staff: Total trainees	0.027	0.340	0.000	-	0.600	-	0.120	0.667	0.667	0.429	0.429	0.429	0.333	0.000	0.034
	2.4	Non-academic staff/trainee ratio	1 – P where P = [Size of non-academic staff / Total trainees]	0.010	1.000	1.000	-	0.400	-	0.067	0.100	0.100	0.200	0.200	0.200	0.016	0.000	0.000
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1	1.000	1.000	1.000	-	0.100	-	0.000	0.200	0.200	1.000	1.000	1.000	0.000	0.000	0.000
<b>Efficiency of Facet: [SU] (%)</b>				<b>35</b>	<b>54</b>	<b>40</b>	-	<b>56</b>	-	<b>25</b>	<b>35</b>	<b>42</b>	<b>38</b>	<b>50</b>	<b>38</b>	<b>42</b>	<b>0</b>	<b>13</b>

GEOPOLITICAL ZONE			SOUTH-SOUTH RESPONDENTS FROM DIFFERENT STATES															
Facets of Interest	Description of indicator	Definition	AKWA IBOM			CROSS RIVER			DELTA			EDO			RIVERS			
			P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
3. Training Courses (TCs)	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted	1.000	0.000	0.000	-	0.000	-	0.167	1.000	1.000	1.000	1.000	1.000	0.250	0.000	1.000
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted	1.000	0.000	0.000	-	1.000	-	1.000	0.667	0.667	0.000	0.000	0.000	1.000	0.000	0.000
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted / Total TCs planned	0.000	0.000	0.000	-	1.000	-	1.000	1.000	1.000	0.400	0.400	0.400	1.000	0.000	0.500
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned	1.000	0.000	0.000	-	0.000	-	0.000	0.200	0.200	0.400	0.400	0.400	1.000	0.000	0.500
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned	0.833	0.800	0.900	-	0.000	-	1.000	0.667	0.667	0.600	0.600	0.600	1.000	0.400	1.000
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted	1.000	0.000	0.000	-	1.000	-	0.333	0.300	1.000	0.600	0.600	0.600	1.000	0.000	1.000
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted	1.000	0.000	0.000	-	1.000	-	0.000	0.000	0.030	1.000	1.000	1.000	1.000	0.000	1.000
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1	1.000	1.000	1.000	-	0.000	-	0.000	0.000	0.000	1.000	1.000	1.000	0.000	1.000	0.000
<b>Efficiency of Facet: [TCs] (%)</b>			<b>85</b>	<b>23</b>	<b>24</b>	<b>-</b>	<b>50</b>	<b>-</b>	<b>44</b>	<b>48</b>	<b>57</b>	<b>63</b>	<b>63</b>	<b>63</b>	<b>78</b>	<b>63</b>	<b>63</b>	

GEOPOLITICAL ZONE			SOUTH-SOUTH RESPONDENTS FROM DIFFERENT STATES															
Facets of Interest	Description of indicator	Definition	AKWA IBOM			CROSS RIVER			DELTA			EDO			RIVERS			
			P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
4. Training Facilities & Utilisation (TFU)	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully =1	1.000	1.000	1.000	-	0.000	-	0.000	0.000	0.000	1.000	1.000	1.000	0.000	1.000	0.000
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)	0.600	1.000	1.000	-	0.000	-	0.000	0.000	0.000	0.500	0.500	0.500	0.400	0.500	0.300
	4.3	Extent of adequacy of learning resource materials	- do -	0.600	0.550	0.600	-	0.200	-	0.000	0.000	0.000	1.000	1.000	1.000	0.400	0.500	0.000
	4.4	Extent of adequacy of training aids for use	- do -	0.500	0.500	0.600	-	0.600	-	0.000	0.000	0.000	0.500	0.500	0.500	0.400	0.500	0.000
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -	0.700	0.600	0.700	-	0.800	-	0.000	0.000	0.000	1.000	0.000	0.000	0.200	0.500	0.200
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -	0.300	0.310	0.300	-	0.400	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.400
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)	0.700	0.690	0.700	-	0.400	-	0.000	0.000	0.000	0.500	0.500	0.500	0.200	1.000	0.300
	4.8	Extent of utilization of machinery	- do -	0.700	0.700	0.700	-	0.400	-	0.000	0.000	0.000	0.000	0.000	0.000	0.200	1.000	0.000
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -	0.900	0.920	0.900	-	0.800	-	0.800	0.000	0.800	1.000	1.000	1.000	0.400	1.000	0.100
	<b>Efficiency of Facet: [TFU] (%)</b>		<b>67</b>	<b>70</b>	<b>72</b>	-	<b>40</b>	-	<b>9</b>	<b>0</b>	<b>9</b>	<b>61</b>	<b>50</b>	<b>50</b>	<b>24</b>	<b>67</b>	<b>14</b>	
5. Financial Performance (FP)	5.1	Availability of financial budget for the institution	Yes or No	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.2	Availability of financial budget for each TC	Yes or No	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.3	Whether information on cost per TC available for each TC	Yes or No	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
	5.4	Whether information on cost per trainee available for each TC	Yes or No	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1	0.000	0.000	0.000	-	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation	0.000	0.000	0.000	-	0.200	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.7	Budgetary utilization – 2: proportion of received funds used	Total expenditure/ Total income received	0.000	0.000	0.000	-	0.100	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000	0.000
	5.9	Revenue generation	(Total income –Planned income) / Total expenditure	0.000	0.000	0.000	-	0.200	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	<b>Efficiency of Facet: [FP] (%)</b>		<b>0</b>	<b>0</b>	<b>0</b>	-	<b>61</b>	-	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>22</b>	<b>11</b>	<b>0</b>	

GEOPOLITICAL ZONE			SOUTH-SOUTH RESPONDENTS FROM DIFFERENT STATES															
Facets of Interest	of	Description of indicator	Definition	AKWA IBOM			CROSS RIVER			DELTA			EDO			RIVERS		
				P	H	T	P	H	T	P	H	T	P	H	T	P	H	T
6. Performance Management (PM)	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1	1.000	1.000	1.000	-	1.000	-	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1	1.000	1.000	1.000	-	1.000	-	1.000	1.000	1.000	1.000	1.000	0.000	0.000	1.000	0.000
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1	1.000	1.000	1.000	-	1.000	-	0.000	0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1	0.000	1.000	0.000	-	1.000	-	0.000	0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1	1.000	1.000	1.000	-	0.000	-	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
			<b>Efficiency of Facet: PM (%)</b>	<b>80</b>	<b>100</b>	<b>80</b>	<b>-</b>	<b>80</b>	<b>-</b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>100</b>	<b>0</b>	0.000	<b>0.8</b>	0
7. Service Facilities (SF)	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1	0.000	0.000	0.000	-	0.000	-	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1	1.000	1.000	1.000	-	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1	0.000	0.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1	1.000	1.000	1.000	-	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1	0.000	1.000	0.000	-	1.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			<b>Efficiency of Facet: [SF] (%)</b>	<b>40</b>	<b>60</b>	<b>40</b>	<b>-</b>	<b>40</b>	<b>-</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.4</b>	<b>0</b>



**APPENDIX J:  
RESPONSES FROM STATE OWNED TECHNICAL COLLEGES IN NORTH-CENTRAL**

GEOPOLITICAL ZONE			NORTH-CENTRAL RESPONDENTS FROM DIFFERENT STATES																		
Facets of Interest	Description of indicator	Definition	BENUE			KWARA			NASSARAWA			NIGER			PLATEAU			ABUJA			
			P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
1. Trainees (T)	1.1	Availability of annual enrolment targets	Yes or No	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-	1.000	1.000	-	1.000	-	1.000	1.000	-
	1.2	Ratio of enrolments to available training places	Enrolments / available training places	-	-	0.058	0.000	0.000	0.000	0.025	0.429	0.667	-	0.000	0.000	-	1.000	-	0.100	1.000	-
	1.3	Trainee course completion rate	No. completed / Enrolments	-	-	0.203	0.000	0.000	0.000	0.800	0.667	0.500	-	0.000	0.000	-	0.000	-	0.000	0.000	-
	1.4	Trainee pass rate	No. of passes /Enrolments	-	-	0.600	0.000	0.000	0.000	0.750	0.818	1.222	-	0.400	0.290	-	0.000	-	0.000	0.000	-
	1.5	Trainee retention rate	[1 - (No. of dropped out / Enrolments)]	-	-	0.150	0.000	0.000	0.000	0.200	0.997	0.990	-	0.053	0.108	-	0.100	-	0.000	0.000	-
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1	-	-	1.000	0.000	1.000	0.000	1.000	1.000	1.000	-	1.000	1.000	-	1.000	-	1.000	0.000	-
	<b>Efficiency of Facet: [T] (%)</b>		-	-	<b>50</b>	<b>17</b>	<b>33</b>	<b>17</b>	<b>63</b>	<b>82</b>	<b>90</b>	-	<b>41</b>	<b>40</b>	-	<b>52</b>	-	<b>35</b>	<b>33</b>	-	
2. Staff Utilization (SU)	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre	-	-	0.910	0.170	0.000	0.200	0.600	0.429	0.333	-	0.667	0.840	-	0.600	-	1.000	1.000	-
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff	-	-	0.797	0.170	0.000	0.170	0.800	0.667	0.250	-	0.400	0.429	-	0.600	-	0.730	0.730	-
	2.3	Academic staff/trainee ratio	Size of academic staff: Total trainees	-	-	0.115	0.000	0.000	0.000	0.083	0.667	0.538	-	0.430	0.333	-	0.050	-	0.052	0.071	-
	2.4	Non-academic staff/trainee ratio	1 - P where P = [Size of non-academic staff / Total trainees]	-	-	0.029	0.000	0.000	0.000	0.040	0.020	0.997	-	0.430	0.429	-	0.125	-	0.019	0.026	-
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1	-	-	0.500	1.000	0.000	1.000	1.000	1.000	1.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	<b>Efficiency of Facet: [SU] (%)</b>		-	-	<b>47</b>	<b>27</b>	<b>0</b>	<b>27</b>	<b>51</b>	<b>56</b>	<b>62</b>	-	<b>39</b>	<b>41</b>	-	<b>48</b>	-	<b>56</b>	<b>37</b>	-	

GEOPOLITICAL ZONE			NORTH-CENTRAL RESPONDENTS FROM DIFFERENT STATES																		
Facets of Interest	Description of indicator	Definition	BENUE			KWARA			NASSARAWA			NIGER			PLATEAU			ABUJA			
			P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
3. Training Courses (TCs)	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted	-	-	1.000	1.000	0.000	1.000	1.000	0.250	0.111	-	0.667	0.500	-	1.000	-	1.000	1.000	-
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted	-	-	1.000	1.000	0.000	1.000	1.000	0.429	0.667	-	0.400	0.125	-	1.000	-	0.000	1.000	-
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted/Total TCs planned	-	-	1.000	1.000	0.000	1.000	1.000	0.667	0.176	-	0.250	0.500	-	1.000	-	0.000	0.000	-
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned	-	-	0.000	1.000	0.000	1.000	1.000	0.667	0.429	-	0.430	0.333	-	1.000	-	0.000	0.000	-
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned	-	-	0.880	1.000	0.900	1.000	0.600	0.667	0.111	-	0.667	0.500	-	0.600	-	1.000	1.000	-
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted	-	-	1.000	1.000	0.000	1.000	1.000	0.667	0.667	-	0.000	0.500	-	0.500	-	1.000	0.000	-
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted	-	-	1.000	1.000	0.000	1.000	1.000	0.750	0.818	-	0.400	0.286	-	0.300	-	1.000	0.000	-
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1	-	-	1.000	0.000	0.000	0.000	0.000	1.000	1.000	-	0.000	0.000	-	1.000	-	1.000	0.600	-
<b>Efficiency of Facet: [TCs] (%)</b>			-	-	<b>86</b>	<b>88</b>	<b>11</b>	<b>88</b>	<b>83</b>	<b>64</b>	<b>50</b>	-	<b>36</b>	<b>34</b>	-	<b>80</b>	-	<b>63</b>	<b>45</b>	-	

GEOPOLITICAL ZONE			NORTH-CENTRAL RESPONDENTS FROM DIFFERENT STATES																		
Facets of Interest	Description of indicator	Definition	BENUE			KWARA			NASSARAWA			NIGER			PLATEAU			ABUJA			
			P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	
4. Training Facilities & Utilisation (TFU)	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully =1	-	-	0.700	1.000	1.000	0.900	0.700	1.000	1.000	-	0.000	0.000	-	0.000	-	1.000	0.700	-
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)	-	-	0.900	0.850	0.000	0.900	0.700	0.600	0.429	-	0.100	0.100	-	1.000	-	1.000	0.800	-
	4.3	Extent of adequacy of learning resource materials	- do -	-	-	0.700	0.800	0.000	0.900	0.500	0.600	0.700	-	0.000	0.000	-	1.000	-	1.000	0.800	-
	4.4	Extent of adequacy of training aids for use	- do -	-	-	0.700	0.800	0.000	0.900	0.600	0.400	0.650	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -	-	-	0.700	0.900	0.000	0.900	0.700	0.300	0.400	-	1.000	1.000	-	1.000	-	0.500	0.800	-
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -	-	-	0.650	0.900	0.000	0.900	0.700	0.600	0.600	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)	-	-	0.700	0.900	0.000	0.900	0.700	0.450	0.650	-	0.000	0.000	-	1.000	-	0.400	0.800	-
	4.8	Extent of utilization of machinery	- do -	-	-	0.600	0.800	0.000	0.900	0.700	0.500	0.600	-	0.000	0.000	-	1.000	-	0.400	0.000	-
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -	-	-	0.800	0.800	0.000	0.900	0.700	0.667	0.818	-	0.000	0.000	-	1.000	-	0.400	1.000	-
	<b>Efficiency of Facet: [TFU] (%)</b>		-	--	<b>72</b>	<b>77</b>	<b>11</b>	<b>90</b>	<b>67</b>	<b>57</b>	<b>65</b>	-	<b>12</b>	<b>12</b>	-	<b>89</b>	-	<b>74</b>	<b>54</b>	-	
5. Financial Performance (FP)	5.1	Availability of financial budget for the institution	Yes or No	-	-	1.000	0.000	0.000	0.000	1.000	0.000	0.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	5.2	Availability of financial budget for each TC	Yes or No	-	-	1.000	0.000	1.000	0.000	1.000	1.000	1.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	5.3	Whether information on cost per TC available for each TC	Yes or No	-	-	1.000	1.000	1.000	1.000	0.000	0.000	0.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	5.4	Whether information on cost per trainee available for each TC	Yes or No	-	-	1.000	0.000	1.000	0.000	0.000	0.000	0.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1	-	-	0.700	0.000	0.000	0.000	0.500	1.000	1.000	-	0.000	0.000	-	1.000	-	1.000	0.000	-
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation	-	-	0.700	0.000	0.000	0.000	1.000	0.818	0.818	-	0.000	0.000	-	1.250	-	0.000	0.000	-
	5.7	Budgetary utilization - 2: proportion of received funds used	Total expenditure/ Total income received	-	-	1.000	0.000	0.000	0.000	0.400	0.667	0.667	-	0.000	0.000	-	0.500	-	1.000	0.000	-
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1	-	-	0.700	1.000	0.000	1.000	0.800	1.000	1.000	-	0.000	0.000	-	1.000	-	0.000	0.000	-
	5.9	Revenue generation	(Total income –Planned income) / Total expenditure	-	-	1.429	0.000	0.000	0.000	0.200	1.000	0.350	-	0.000	0.000	-	0.000	-	1.000	0.000	-
	<b>Efficiency of Facet: [FP] (%)</b>		-	-	<b>95</b>	<b>22</b>	<b>33</b>	<b>22</b>	<b>54</b>	<b>61</b>	<b>54</b>	-	<b>0</b>	<b>0</b>	-	<b>97</b>	-	<b>78</b>	<b>0</b>	-	

GEOPOLITICAL ZONE				NORTH-CENTRAL RESPONDENTS FROM DIFFERENT STATES																	
Facets Interest	of	Description of indicator	Definition	BENUE			KWARA			NASSARAWA			NIGER			PLATEAU			ABUJA		
				P	H	T	P	H	T	P	H	T	P	H	T	P	H	T	P	H	T
6. Performance Management (PM)	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.600	0.000	1.000	0.000	0.000	-	1.000	-	1.000	0.800	-	
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.600	0.000	0.000	0.000	0.000	-	1.000	-	0.000	0.300	-	
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.700	0.000	0.000	0.000	0.000	-	1.000	-	1.000	0.000	-	
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.600	0.000	0.000	0.000	0.000	-	1.000	-	1.000	0.500	-	
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1	-	-	0.000	1.000	0.000	1.000	1.000	1.000	1.000	0.000	0.000	-	1.000	-	1.000	1.000	-	
			<b>Efficiency of Facet: [PM] (%)</b>	-	-	<b>80</b>	<b>100</b>	<b>0</b>	<b>100</b>	<b>70</b>	<b>20</b>	<b>40</b>	<b>0</b>	<b>0</b>	-	<b>100</b>	-	<b>80</b>	<b>52</b>	-	
7. Service Facilities (SF)	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.500	0.000	0.000	0.000	0.000	-	1.000	-	1.000	1.000	-	
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000	-	1.000	-	1.000	1.000	-	
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1	-	-	1.000	1.000	0.000	1.000	0.800	1.000	1.000	0.000	0.000	-	1.000	-	1.000	1.000	-	
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1	-	-	0.250	1.000	0.000	1.000	1.000	0.000	1.000	0.000	0.000	-	1.000	-	1.000	0.800	-	
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1	-	-	0.000	1.000	0.000	1.000	0.700	0.000	1.000	0.000	0.000	-	1.000	-	0.000	0.800	-	
			<b>Efficiency of Facet: [SF] (%)</b>	-	-	<b>65</b>	<b>100</b>	<b>0</b>	<b>100</b>	<b>80</b>	<b>20</b>	<b>60</b>	<b>0</b>	<b>0</b>	-	<b>100</b>	-	<b>80</b>	<b>92</b>	-	

**APPENDIX K:  
RESPONSES FROM STATE OWNED TECHNICAL COLLEGES IN SOUTH-WEST**

GEOPOLITICAL ZONE				SOUTH-WEST RESPONDENTS FROM DIFFERENT STATES											
Facets of Interest	Description of indicator	Definition	OGUN			ONDO			OSUN			OYO			
			P	H	T	P	H	T	P	H	T	P	H	T	
1. Trainees (T)	1.1	Availability of annual enrolment targets	Yes or No	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	1.000	0.000	0.000
	1.2	Ratio of enrolments to available training places	Enrolments / available training places	0.000	0.000	0.000	0.800	-	-	0.667	0.000	-	0.000	0.000	0.000
	1.3	Trainee course completion rate	No. completed / Enrolments	0.000	0.000	0.000	0.000	-	-	0.915	0.000	-	0.000	0.000	0.000
	1.4	Trainee pass rate	No. of passes / Enrolments	0.900	0.900	0.850	0.850	-	-	0.900	0.000	-	0.025	0.000	0.025
	1.5	Trainee retention rate	[1 – (No. of dropped out / Enrolments)]	0.790	0.680	0.590	0.100	-	-	0.000	0.000	-	0.010	0.000	0.010
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1	0.000	0.000	0.000	1.000	-	-	1.000	1.000	-	0.000	0.000	0.000
	<b>Efficiency of Facet: [T] (%)</b>				<b>45</b>	<b>42</b>	<b>41</b>	<b>86</b>	-	-	<b>74</b>	<b>33</b>	-	<b>17</b>	<b>0</b>
2. Staff Utilization (SU)	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre	0.000	0.000	0.250	0.750	-	-	0.000	0.000	-	0.450	0.000	1.000
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff	0.250	0.250	0.250	0.750	-	-	0.744	0.778	-	0.000	0.000	0.450
	2.3	Academic staff/trainee ratio	Size of academic staff: Total trainees	0.011	0.011	0.015	0.700	-	-	0.000	0.092	-	0.033	0.000	0.000
	2.4	Non-academic staff/trainee ratio	1 – P where P = [Size of non-academic staff / Total trainees]	1.000	0.000	1.000	0.200	-	-	0.674	0.000	-	0.040	0.000	1.000
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	1.000	0.000	1.000
	<b>Efficiency of Facet: [SU] (%)</b>				<b>45</b>	<b>25</b>	<b>50</b>	<b>68</b>	-	-	<b>48</b>	<b>37</b>	-	<b>31</b>	<b>0</b>

GEOPOLITICAL ZONE				SOUTH-WEST RESPONDENTS FROM DIFFERENT STATES											
Facets of Interest	Description of indicator	Definition	OGUN			ONDO			OSUN			OYO			
			P	H	T	P	H	T	P	H	T	P	H	T	
3. Training Courses (TCs)	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted	1.000	1.000	1.000	1.000	-	-	1.000	0.000	-	0.000	0.000	0.000
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted	0.500	0.000	0.000	1.000	-	-	0.667	0.000	-	1.000	0.000	0.000
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted /Total TCs planned	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.000	0.000	1.000
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.500	0.000	0.000
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned	1.000	1.000	1.000	0.833	-	-	1.000	1.000	-	0.250	0.000	0.500
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.333	0.000	0.250
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	1.000	0.000	0.333
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.000	0.000	1.000
<b>Efficiency of Facet: [TCs] (%)</b>				<b>94</b>	<b>88</b>	<b>88</b>	<b>98</b>	<b>-</b>	<b>-</b>	<b>96</b>	<b>75</b>	<b>-</b>	<b>39</b>	<b>0</b>	<b>39</b>

GEOPOLITICAL ZONE				SOUTH-WEST RESPONDENTS FROM DIFFERENT STATES											
Facets of Interest	of	Description of indicator	Definition	OGUN			ONDO			OSUN			OYO		
				P	H	T	P	H	T	P	H	T	P	H	T
4. Training Facilities & Utilisation (TFU)	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully =1	0.500	0.600	0.000	1.000	-	-	1.000	0.300	-	0.000	0.000	0.000
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)	0.500	0.400	0.500	1.000	-	-	0.400	0.200	-	0.500	0.000	0.000
	4.3	Extent of adequacy of learning resource materials	- do -	0.500	0.400	0.500	1.000	-	-	0.400	0.200	-	0.500	0.000	0.500
	4.4	Extent of adequacy of training aids for use	- do -	0.500	0.400	0.500	1.000	-	-	0.400	1.000	-	0.500	0.000	0.500
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -	0.500	0.400	0.500	1.000	-	-	1.000	1.000	-	0.400	0.000	0.400
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -	0.500	0.400	0.500	1.000	-	-	0.300	0.200	-	0.000	0.000	0.000
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.500	0.000	0.500
	4.8	Extent of utilization of machinery	- do -	0.500	0.400	1.000	1.000	-	-	1.000	1.000	-	0.400	0.000	0.400
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	0.400	0.000	0.400
		<b>Efficiency of Facet: [TFU] (%)</b>	<b>61</b>	<b>56</b>	<b>61</b>	<b>100</b>	<b>-</b>	<b>-</b>	<b>72</b>	<b>66</b>	<b>-</b>	<b>36</b>	<b>0</b>	<b>30</b>	
5. Financial Performance (FP)	5.1	Availability of financial budget for the institution	Yes or No	0.000	0.000	0.000	0.000	-	-	1.000	0.000	-	0.000	0.000	0.000
	5.2	Availability of financial budget for each TC	Yes or No	0.000	0.000	0.000	0.000	-	-	0.000	0.000	-	0.000	0.000	0.000
	5.3	Whether information on cost per TC available for each TC	Yes or No	1.000	0.000	1.000	0.000	-	-	1.000	1.000	-	0.000	1.000	0.000
	5.4	Whether information on cost per trainee available for each TC	Yes or No	0.000	1.000	0.000	0.000	-	-	1.000	1.000	-	0.000	1.000	0.000
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1	0.000	0.000	0.000	0.000	-	-	0.000	0.000	-	0.000	1.000	0.000
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation	0.000	0.000	0.000	0.000	-	-	0.000	0.000	-	0.000	0.000	0.000
	5.7	Budgetary utilization – 2: proportion of received funds used	Total expenditure/ Total income received	0.000	0.000	0.000	0.000	-	-	0.000	0.000	-	0.000	0.000	0.000
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1	0.000	0.000	0.000	0.000	-	-	1.000	0.000	-	0.000	1.000	0.000
	5.9	Revenue generation	(Total income –Planned income) / Total expenditure	1.000	0.000	0.000	0.000	-	-	0.000	0.000	-	0.000	0.000	0.000
		<b>Efficiency of Facet: [FP] (%)</b>	<b>22</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>44</b>	<b>22</b>	<b>-</b>	<b>0</b>	<b>44</b>	<b>0</b>	

GEOPOLITICAL ZONE				SOUTH-WEST RESPONDENTS FROM DIFFERENT STATES											
Facets of Interest	of	Description of indicator	Definition	OGUN			ONDO			OSUN			OYO		
				P	H	T	P	H	T	P	H	T	P	H	T
6. Performance Management (PM)	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1	0.500	1.000	1.000	1.000	-	-	0.300	0.400	-	1.000	1.000	0.000
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1	1.000	0.400	0.500	1.000	-	-	0.300	0.000	-	0.000	0.000	0.000
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1	1.000	1.000	1.000	1.000	-	-	0.400	0.000	-	0.000	1.000	0.000
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1	1.000	0.400	0.500	1.000	-	-	0.400	0.000	-	0.000	1.000	0.000
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1	1.000	1.000	1.000	1.000	-	-	1.000	1.000	-	1.000	1.000	1.000
	<b>Efficiency of Facet: PM (%)</b>				<b>90</b>	<b>76</b>	<b>80</b>	<b>100</b>	<b>-</b>	<b>-</b>	<b>48</b>	<b>28</b>	<b>-</b>	<b>40</b>	<b>80</b>
7. Service Facilities (SF)	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1	0.500	0.400	0.500	0.000	-	-	1.000	1.000	-	0.000	0.000	0.000
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1	1.000	1.000	1.000	0.000	-	-	1.000	1.000	-	1.000	1.000	1.000
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1	0.500	0.400	0.500	0.000	-	-	0.400	0.400	-	0.000	1.000	0.000
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1	1.000	1.000	1.000	1.000	-	-	0.400	1.000	-	0.000	0.000	0.000
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1	0.500	0.400	0.500	1.000	-	-	0.400	0.400	-	0.000	1.000	0.000
	<b>Efficiency of Facet: [SF] (%)</b>				<b>70</b>	<b>64</b>	<b>70</b>	<b>40</b>	<b>-</b>	<b>-</b>	<b>64</b>	<b>76</b>	<b>-</b>	<b>20</b>	<b>60</b>



**APPENDIX L:  
RESPONSES FROM STATE OWNED TECHNICAL COLLEGES IN SOUTH-EAST**

GEOPOLITICAL ZONE				SOUTH-EAST RESPONDENTS FROM DIFFERENT STATES								
Facets Interest	of	Description of indicator	Definition	ANAMBRA			EBONYI			IMO		
				P	H	T	P	H	T	P	H	T
1. Trainees (T)	1.1	Availability of annual enrolment targets	Yes or No	-	0.000	0.000	1.000	0.000	-	0.000	-	
	1.2	Ratio of enrolments to available training places	Enrolments / available training places	-	0.125	0.200	-	-	0.000	-	0.500	-
	1.3	Trainee course completion rate	No. completed / Enrolments	-	0.000	0.000	-	-	0.800	-	0.000	-
	1.4	Trainee pass rate	No. of passes / Enrolments	-	0.000	0.400	-	-	0.700	-	0.600	-
	1.5	Trainee retention rate	[1 – (No. of dropped out / Enrolments)]	-	0.100	0.100	-	-	0.000	-	0.500	-
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1	-	1.000	1.000	-	1.000	0.800	-	0.000	-
		<b>Efficiency of Facet: [T] (%)</b>		-	<b>20</b>	<b>28</b>	-	<b>33</b>	<b>38</b>	-	<b>27</b>	-
2. Staff Utilization (SU)	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre	-	0.250	0.250	-	-	0.900	-	0.250	-
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff	-	0.000	0.000	-	-	0.333	-	0.750	-
	2.3	Academic staff/trainee ratio	Size of academic staff: Total trainees	-	0.250	0.250	-	-	0.000	-	0.100	-
	2.4	Non-academic staff/trainee ratio	1 – P where P = [Size of non-academic staff / Total trainees]	-	0.000	0.000	-	-	0.000	-	0.025	-
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	-	1.000	-
		<b>Efficiency of Facet: [SU] (%)</b>		-	<b>10</b>	<b>10</b>	-	-	<b>45</b>	-	<b>43</b>	-

GEOPOLITICAL ZONE				SOUTH-EAST RESPONDENTS FROM DIFFERENT STATES								
Facets of Interest	Description of indicator	Definition	ANAMBRA			EBONYI			IMO			
			P	H	T	P	H	T	P	H	T	
3. Training Courses (TCs)	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted	-	0.333	0.333	-	0.000	-	0.125	-	
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted	-	0.333	0.333	-	0.000	-	0.000	-	
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted /Total TCs planned	-	0.333	0.333	-	0.000	-	1.000	-	
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned	-	0.333	0.333	-	0.000	-	0.000	-	
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned	-	0.333	0.333	-	0.000	-	0.800	-	
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted	-	1.000	1.000	-	0.000	-	0.000	-	
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted	-	1.000	1.000	-	0.000	-	0.000	-	
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1	-	1.000	1.000	-	0.000	-	1.000	-	
	<b>Efficiency of Facet: [TCs] (%)</b>			-	<b>58</b>	<b>58</b>	-	<b>0</b>	-	<b>37</b>	-	

GEOPOLITICAL ZONE				SOUTH-EAST RESPONDENTS FROM DIFFERENT STATES								
Facets Interest	of	Description of indicator	Definition	ANAMBRA			EBONYI			IMO		
				P	H	T	P	H	T	P	H	T
4. Training Facilities & Utilisation (TFU)	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully =1	-	1.000	1.000	-	-	1.000	-	0.000	-
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)	-	1.000	1.000	-	-	0.950	-	0.400	-
	4.3	Extent of adequacy of learning resource materials	- do -	-	1.000	1.000	-	-	0.900	-	0.300	-
	4.4	Extent of adequacy of training aids for use	- do -	-	1.000	1.000	-	-	0.950	-	0.300	-
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -	-	1.000	1.000	-	-	0.450	-	0.200	-
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -	-	1.000	1.000	-	-	0.300	-	0.000	-
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)	-	1.000	1.000	-	-	0.500	-	0.600	-
	4.8	Extent of utilization of machinery	- do -	-	1.000	1.000	-	-	0.300	-	0.700	-
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -	-	1.000	1.000	-	-	0.600	-	0.700	-
			<b>Efficiency of Facet: [TFU] (%)</b>		-	<b>100</b>	<b>100</b>	-	-	<b>61</b>	-	<b>37</b>
5. Financial Performance (FP)	5.1	Availability of financial budget for the institution	Yes or No	-	0.000	0.000	-	-	0.000	-	1.000	-
	5.2	Availability of financial budget for each TC	Yes or No	-	0.000	0.000	-	-	0.000	-	0.000	-
	5.3	Whether information on cost per TC available for each TC	Yes or No	-	0.000	0.000	-	-	0.000	-	1.000	-
	5.4	Whether information on cost per trainee available for each TC	Yes or No	-	0.000	0.000	-	-	0.000	-	0.000	-
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1	-	1.000	1.000	-	-	0.100	-	0.000	-
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation	-	0.000	0.000	-	-	0.000	-	0.000	-
	5.7	Budgetary utilization – 2: proportion of received funds used	Total expenditure/ Total income received	-	0.000	0.000	-	-	0.000	-	0.000	-
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1	-	1.000	1.000	-	-	0.100	-	0.000	-
	5.9	Revenue generation	(Total income –Planned income) / Total expenditure	-	0.000	0.000	-	-	0.000	-	0.000	-
		<b>Efficiency of Facet: [FP] (%)</b>		-	<b>22</b>	<b>22</b>	-	-	<b>2</b>	-	<b>22</b>	-

GEOPOLITICAL ZONE			SOUTH-EAST RESPONDENTS FROM DIFFERENT STATES									
Facets of Interest	Description of indicator	Definition	ANAMBRA			EBONYI			IMO			
			P	H	T	P	H	T	P	H	T	
6. Performance Management (PM)	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1	-	0.000	0.000	-	-	0.100	-	0.000	-
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1	-	0.000	0.000	-	-	0.800	-	0.000	-
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1	-	0.000	0.000	-	-	0.100	-	0.000	-
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1	-	0.000	0.000	-	-	0.200	-	0.000	-
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	-	0.000	-
		<b>Efficiency of Facet: PM (%)</b>		<b>0</b>	<b>0</b>			<b>44</b>		<b>0</b>		
7. Service Facilities (SF)	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1	-	0.000	0.000	-	-	0.100	-	1.000	-
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	-	1.000	-
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1	-	0.000	0.000	-	-	0.100	-	0.000	-
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1	-	0.000	0.000	-	-	0.800	-	1.000	-
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1	-	0.000	0.000	-	-	0.100	-	1.000	-
		<b>Efficiency of Facet: [SF] (%)</b>		<b>0</b>	<b>0</b>			<b>42</b>		<b>80</b>		

**APPENDIX M:  
RESPONSES FROM FEDERAL SCIENCE AND TECHNICAL COLLEGES (FSTC) IN FOUR ZONES: NORTH-CENTRAL; SOUTH-EAST; SOUTH-SOUTH; AND SOUTH-WEST**

Facets of Interest	of	Description of indicator	Definition	RESPONDENTS FROM EACH FEDERAL COLLEGE IN THE FOUR ZONES											
				NC ABUJA			SE ANAMBRA			SS BAYELSA			SW LAGOS		
				P	H	T	P	H	T	P	H	T	P	H	T
1. Trainees (T)	1.1	Availability of annual enrolment targets	Yes or No	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	1.2	Ratio of enrolments to available training places	Enrolments / available training places	-	0.000	0.000	-	-	0.000	0.000	0.000	0.029	-	0.500	-
	1.3	Trainee course completion rate	No. completed / Enrolments	-	0.000	0.000	-	-	0.200	0.000	0.000	0.600	-	0.800	-
	1.4	Trainee pass rate	No. of passes / Enrolments	-	0.000	0.000	-	-	0.150	0.000	0.000	0.429	-	0.900	-
	1.5	Trainee retention rate	[1 – (No. of dropped out / Enrolments)]	-	0.000	0.000	-	-	0.050	0.000	0.000	0.143	-	0.200	-
	1.6	Extent of implementation of on-the-job placement	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	1.000	0.000	1.000	-	1.000	-
		<b>Efficiency of Facet: [T] (%)</b>		-	<b>17</b>	<b>17</b>	-	-	<b>40</b>	<b>33</b>	<b>17</b>	<b>53</b>	-	<b>73</b>	-
2. Staff Utilization (SU)	2.1	Proportion of academic staff in place against approved cadre	Size of academic staff / Cadre	-	0.000	0.000	-	-	0.030	0.000	0.000	1.000	-	0.000	-
	2.2	Proportion of academic staff out of total staff (academic & non-academic staff)	Size of academic staff / Total staff	-	0.000	0.000	-	-	0.030	0.000	0.000	0.714	-	0.667	-
	2.3	Academic staff/trainee ratio	Size of academic staff: Total trainees	-	0.400	0.400	-	-	0.020	0.000	0.000	0.083	-	0.053	-
	2.4	Non-academic staff/trainee ratio	1 – P where P = [Size of non-academic staff / Total trainees]	-	0.000	0.000	-	-	0.000	0.000	0.000	0.033	-	0.027	-
	2.5	Extent of use of teaching resource materials for the current month for each Training Course (TC)	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
		<b>Efficiency of Facet: [SU] (%)</b>		-	<b>28</b>	<b>28</b>	-	-	<b>27</b>	<b>20</b>	<b>20</b>	<b>57</b>	-	<b>35</b>	-

Facets of Interest	Description of indicator	Definition	RESPONDENTS FROM EACH FEDERAL COLLEGE IN THE FOUR ZONES												
			NC ABUJA			SE ANAMBRA			SS BAYELSA			SW LAGOS			
			P	H	T	P	H	T	P	H	T	P	H	T	
3. Training Courses (TCs)	3.1	Proportion of accredited TCs conducted out of total TCs conducted	No of accredited TCs / Total TCs conducted	-	1.000	1.000	-	-	0.167	0.000	0.000	1.000	-	1.000	-
	3.2	Proportion of National Vocational Qualification (NVQ) TCs conducted out of total TCs conducted	No of NVQ TCs / Total TCs conducted	-	0.214	0.214	-	-	0.167	0.000	0.000	1.000	-	0.000	-
	3.3	Proportion of TCs conducted out of those planned	No. of TCs conducted /Total TCs planned	-	0.000	0.000	-	-	0.333	0.000	0.000	1.000	-	1.000	-
	3.4	Proportion of TCs started within one month of due dates out of those planned	No. of TCs started within one month of due dates / Total TCs planned	-	0.000	0.000	-	-	0.667	0.000	0.000	1.000	-	0.000	-
	3.5	Proportion of TCs conducted with at least 90% training places filled out of those planned	No. of TCs conducted with at least 90% training places filled / Total TCs planned	-	1.000	1.000	-	-	1.000	0.000	0.000	1.000	-	0.778	-
	3.6	Proportion of TCs for which examinations were conducted within one month of due dates out of those TCs conducted	No. of TC exams conducted within one month of due dates / Total TCs conducted	-	1.000	1.000	-	-	0.333	0.000	0.000	1.000	-	1.000	-
	3.7	Proportion of TCs for which examination results were released within one month of due dates out of those TCs for which examinations were conducted	No. of TC exam results released within one month of due dates / Total TC exams conducted	-	1.000	1.000	-	-	0.167	0.000	0.000	1.000	-	1.000	-
	3.8	Level of implementation of Quality Management System(QMS) for the Institution	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	<b>Efficiency of Facet: [TCs] (%)</b>		-	<b>65</b>	<b>65</b>	-	-	<b>48</b>	<b>13</b>	<b>13</b>	<b>100</b>	-	<b>72</b>	-	

Facets of Interest	of	Description of indicator	Definition	RESPONDENTS FROM EACH FEDERAL COLLEGE IN THE FOUR ZONES											
				NC ABUJA			SE ANAMBRA			SS BAYELSA			SW LAGOS		
				P	H	T	P	H	T	P	H	T	P	H	T
4. Training Facilities & Utilisation (TFU)	4.1	Availability of teaching resource materials for each Training Course (TC)	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	4.2	Extent of adequacy of laboratories / workshops	Extent of adequacy (as perceived by trainers)	-	1.000	1.000	-	-	0.400	0.000	0.000	0.600	-	1.000	-
	4.3	Extent of adequacy of learning resource materials	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	0.300	-	0.500	-
	4.4	Extent of adequacy of training aids for use	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	0.300	-	0.500	-
	4.5	Extent of adequacy of own or access to reference materials elsewhere	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	1.000	-	1.000	-
	4.6	Extent of adequacy of budgetary provisions for consumables and maintenance work	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	0.200	-	0.000	-
	4.7	Extent of utilization of tools & equipment	Extent of utilization (as perceived by trainers)	-	1.000	1.000	-	-	0.400	0.000	0.000	0.200	-	0.400	-
	4.8	Extent of utilization of machinery	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	0.100	-	0.400	-
	4.9	Extent of utilization of class rooms, laboratories / workshops	- do -	-	1.000	1.000	-	-	0.400	0.000	0.000	0.600	-	1.000	-
		<b>Efficiency of Facet: [TFU] (%)</b>		<b>-</b>	<b>100</b>	<b>100</b>	<b>-</b>	<b>-</b>	<b>47</b>	<b>11</b>	<b>11</b>	<b>48</b>	<b>-</b>	<b>53</b>	<b>-</b>
5. Financial Performance (FP)	5.1	Availability of financial budget for the institution	Yes or No	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	5.2	Availability of financial budget for each TC	Yes or No	-	0.000	0.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	5.3	Whether information on cost per TC available for each TC	Yes or No	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	5.4	Whether information on cost per trainee available for each TC	Yes or No	-	0.000	0.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	5.5	Extent of adequacy of budgetary allocation	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	5.6	Budgetary utilization - 1: proportion of budgetary allocation used	Total expenditure/ Total allocation	-	0.000	0.000	-	-	0.000	0.000	0.000	0.000	-	0.000	-
	5.7	Budgetary utilization – 2: proportion of received funds used	Total expenditure/ Total income received	-	0.000	0.000	-	-	0.000	0.000	0.000	0.000	-	0.000	-
	5.8	Availability and extent of implementation of revenue generation plan	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	0.000	-
	5.9	Revenue generation	(Total income –Planned income) / Total expenditure	-	0.000	0.000	-	-	0.000	0.000	0.000	0.000	-	0.000	--
		<b>Efficiency of Facet: [FP] (%)</b>		<b>-</b>	<b>44</b>	<b>44</b>	<b>-</b>	<b>-</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>-</b>	<b>11</b>	<b>-</b>

Facets Interest	of	Description of indicator	Definition	RESPONDENTS FROM EACH FEDERAL COLLEGE IN THE FOUR ZONES											
				NC ABUJA			SE ANAMBRA			SS BAYELSA			SW LAGOS		
				P	H	T	P	H	T	P	H	T	P	H	T
6. Performance Management (PM)	6.1	Availability and extent of implementation of annual course development plan	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	6.2	Availability and extent of implementation of annual staff development plan	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	6.3	Availability and extent of implementation of corporate / strategic plan	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	6.4	Availability and extent of implementation of service marketing plan	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	0.000	0.000	0.000	-	0.000	-
	6.5	Extent to which regular performance review with staff	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	0.000	0.000	0.000	-	1.000	-
			<b>Efficiency of Facet: PM (%)</b>		-	<b>100</b>	<b>100</b>	-	-	<b>100</b>	<b>60</b>	<b>60</b>	<b>60</b>	-	<b>80</b>
7. Service Facilities (SF)	7.1	Extent of adequacy of fire safety precautions	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	7.2	Extent of adequacy of electrical safety precautions	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	1.000	-	1.000	-
	7.3	Extent of adequacy of health and hygienic facilities (such as trainees' washrooms/toilets, first aid, etc.),	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	0.000	-	1.000	-
	7.4	Extent of adequacy of library facilities	None = 0 Fully = 1	-	0.000	0.000	-	-	1.000	1.000	1.000	0.000	-	1.000	-
	7.5	Extent of adequacy of housekeeping	None = 0 Fully = 1	-	1.000	1.000	-	-	1.000	1.000	1.000	0.000	-	1.000	-
			<b>Efficiency of Facet: [SF] (%)</b>		-	<b>60</b>	<b>60</b>	-	-	<b>100</b>	<b>100</b>	<b>100</b>	<b>40</b>	-	<b>100</b>



**APPENDIX N:**

**Table 5.2: The provision of TVET institutions in the Six (6) Geopolitical Zones and their States**

ZONE	S/N	STATES	GOVT. SEC. SCHS (F&S)	GE	TC		
				F & S	F	S	P
<b>South-South</b>	1	Akwa Ibom	608	602	6		
	2	Bayelsa	297	295	2		
	3	Cross River	487	483	4		
	4	Delta	1066	1060	6		
	5	Edo	918	911	7		
	6	Rivers	800	795	5		
			<b>Total</b>		<b>4146</b>	<b>30</b>	
		<b>% Total</b>		<b>99.28</b>	<b>0.72</b>		
<b>North-Central</b>	1	Benue	749	742	7		
	2	Kogi	163	159	4		
	3	Kwara	544	539	5		
	4	Nassarawa	843	840	3		
	5	Niger	513	506	7		
	6	Plateau	1143	1142	1		
	7	Abuja	85	83	2		
		<b>Total</b>	<b>4040</b>	<b>4011</b>	<b>29</b>		
		<b>% Total</b>		<b>99.28</b>	<b>0.72</b>		
<b>South-West</b>	1	Ekiti	210	205	5		
	2	Ogun	332	325	7		
	3	Ondo	844	838	6		
	4	Osun	690	680	10		
	5	Oyo	902	896	6		
	6	Lagos	569	563	6		
		<b>Total</b>	<b>3547</b>	<b>3507</b>	<b>40</b>		
		<b>% Total</b>		<b>98.87</b>	<b>1.13</b>		
<b>South-East</b>	1	Abia	653	649	4		
	2	Anambra	504	502	2		
	3	Ebonyi	103	101	2		1
	4	Enugu	498	495	3		
	5	Imo	380	376	4		
	6	<b>Total</b>	<b>2138</b>	<b>2123</b>	<b>16<sup>6</sup></b>		
		<b>% Total</b>		<b>99.30</b>	<b>0.70</b>		
<b>North-West</b>	1	Jigawa	781	780	1		
	2	Kaduna	253	248	5		
	3	Katsina	774	770	4		
	4	Kano	683	678	5		
	5	Kebbi	329	326	3		
	6	Sokoto	535	532	3		
	7	Zamfara	254	254	0		
		<b>Total</b>	<b>3609</b>	<b>3588</b>	<b>21</b>		
		<b>% Total</b>		<b>99.42</b>	<b>0.58</b>		
<b>North-East</b>	1	Adamawa	296	292	4		
	2	Bauchi	288	286	2		
	3	Bornu	206	203	3		
	4	Gombe	171	169	2		
	5	Taraba	91	84	7		
	6	Yobe	289	288	1		
		<b>Total</b>	<b>1341</b>	<b>1322</b>	<b>19</b>		
		<b>% Total</b>		<b>98.58</b>	<b>1.42</b>		
		<b>Grand Total</b>	<b>18,082</b>	<b>17,928</b>	<b>154</b>		<b>1</b>
		<b>% Total</b>		<b>99.12</b>	<b>0.88</b>		

Note: In the table above, General Education is denoted as ‘GE’; Technical College ‘TC’; Federal as ‘F’; State as ‘S’; and Private as ‘P’ Selected Education Metrics for Secondary Schools in the six geopolitical zones of Nigeria from Eze, Nwaura and Ngenda, (2014), and List of approved Technical Colleges in Nigeria from NBTE (n.d).

<sup>6</sup> Calculation made with 15 Technical Colleges as part of the 154 Government owned Colleges, since the General Education Schools are also Government owned.

**APPENDIX O:  
TURNITIN REPORT**

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**APPENDIX P:  
EDITING CERTIFICATE**

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27<sup>th</sup> June 2018

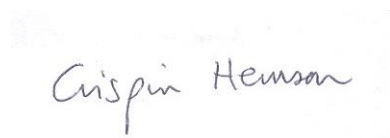
TO WHOM IT MAY CONCERN

This is to record that I have carried out language editing of the thesis by Dagogo William Legg-Jack entitled:

**Technical and Vocational Education and Training (TVET) Provision in Nigerian Technical Colleges: Exploring the Relevance, Effectiveness and Efficiency (REE) of Stakeholder Partnerships Using Community-Based Participatory Action Research (CBPAR).**

My editing has **not** extended to the list of references or to the appendices, or to any changes made after the final draft I worked on.

Yours sincerely



Crispin Hemson