

**APPRAISAL OF VOCATIONAL TRAINING PROGRAMMES IN  
RADIO TELEVISION AND GLOBAL SYSTEM OF MOBILE  
COMMUNICATION SERVICING IN VOCATIONAL  
TRAINING CENTRES IN GOMBE STATE, NIGERIA**

**PHILIP, Sunday**  
**M.TECH/TED/15/0512**

**OCTOBER, 2019**

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**BY**

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**PHILIP, Sunday**  
**(M.TECH/TED/15/0512)**

**A THESIS SUBMITTED TO THE DEPARTMENT OF ELECTRICAL TECHNOLOGY  
EDUCATION, SCHOOL OF TECHNOLOGY AND SCIENCE EDUCATION,  
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AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY  
EDUCATION IN ELECTRONICS TECHNOLOGY**

**OCTOBER, 2019**

## DECLARATION

I hereby declare that this thesis was written by me and it is a record of my own research work. It has not been presented before in any previous application for a higher degree. All references cited have been duly acknowledged.

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**PHILIP, Sunday**

**M.TECH/TED/15/0512**

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Date

**DEDICATION**

I dedicate this thesis to my beloved father, Mr Philip Amuche for his encouragement and support.

**APPROVAL PAGE**

This thesis entitled “Appraisal of Vocational Training Programme in Radio Television and Global System of Mobile (GSM) Communication Servicing in Vocational Training Centres in Gombe State” meets the regulations governing the award of the Degree of Masters of Technology Education of the Modibbo Adama University of Technology, Yola and is approved for its contribution to knowledge and literary presentation.

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Prof. L. C. Ezugu  
Supervisor

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Date

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Internal Examiner

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Date

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External Examiner

---

Date

---

Prof. E. V. Mbagu  
Head of Department

---

Date

---

Prof. M.M. Malgwi  
Dean, School of Postgraduate Studies

---

Date

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## ABSTRACT

The purpose of this study was to Appraise Vocational Training Programme in Radio Television and Global System of Mobile (GSM) Communication Servicing in Vocational Training Centres in Gombe state. Four research questions and two hypotheses guided the study. Survey research design was employed to conduct the study. The population of the study consisted of 55 respondents (13 administrators and 42 trainers). There were no sampling techniques because the entire population was used. The instruments for data collection were a check list and a structured questionnaire titled “Vocational Training Centre Appraisal Questionnaire (VOTCAQ)”. The questionnaire comprised of Seventy-Six (76) items. The instrument was validated by three lecturers (two from the Electrical Technology Education Department and one from Technology Education Department Modibbo Adama University of Technology Yola). The reliability of the instrument was obtained by trial-testing the instrument at VTC in Yola outside the study area. The data subsequently obtained were analyzed with Cronbach alpha to obtained reliability of 0.72. The data for research questions were analyze using percentage, mean and standard deviation while z-test was used in testing the null hypotheses at 0.05 level of significance. The findings of the study revealed among others that: equipment such as (work station, multi meter digital, multi meter analogue, booster/meter, white light, Assorted phone panels, Tonado (software box), Television training module, probe/logic pulsar, Transformer training module, etc in RTV and GSM servicing trade workshop at the Vocational Training Centres in Gombe State are not adequate, but equipment such as magnifying glass, Radio training module and Variable power supply are moderately adequate and only computers desk or laptop was adequate. Tools such as set of flat screwdrivers, Asterics, set of Allen key, set of star screwdrivers, set of spanners and soldering iron in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State are adequate but tools such as soldering iron stand, long nose pliers, pair of pliers and side cutters were moderately adequate. However only lead suckers, are not adequate, majority of the technical skills such as (ability to: Read multi meter for fault diagnosis, read oscilloscope in fault diagnosis, use soldering iron, construct new circuit, clear fault at power, vertical deflection and horizontal deflection sections of TV receiver, Repair radio receiver, solve hardware problem in GSM, solve software in GSM, etc) are moderately not required by the trainers and majority of training tools and equipment (work station, multi meter digital, booster/meter, Assorted phone panels, magnifying glass, Television training module, probe/logic pulsar, variable power supply, computer , black and white tv, TV training module) in RTV and GSM servicing trade workshop at the vocational training centres in Gombe State are highly utilized by the trainers but very few equipment and tools such as (multi meter analogue, white light, tonado (software box) , Oscilloscope, Frequency converter, Isolation transformer, vector scope, signal strength meter and signal generator) are lowly utilized. Based on these findings, recommendations were made among which are: The Ministry of Education in Gombe State should provide the Centres with adequate training tools and equipment so that the Centres will achieve its goals, Government should provide more training to trainers on the technical skills required by the trainers and Private organizations should be encouraged by Government to contribute/ intervene by donating training tools and equipment to the school workshops.

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## CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Technical and Vocational Education is used as a comprehensive term in the educational process in addition to general education. It refers to the study of technology and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Okoye and Arimonu 2016). Momoh (2012) defines Vocational Education as a form of education whose primary purpose is to prepare persons for employment in recognized occupation. In the same vein Momoh defines Technical Education as a post-secondary vocational training programme whose major purpose is to produce technicians. The terms Technical Education and Vocational Education are often used interchangeably but, they are separate and distinct terms. Okoye and Arimonu (2016) clarify the difference between Vocational and Technical Education as: Vocational Education refers to skill based programmes which are designed for skill acquisition at lower level of education. Vocational Education programmes focus on specific vocations for entry into defined workplace while Technical education, on the other hand is not designed for any particular vocation but provides general technical knowledge. This type of education prepares people for entry into recognized occupation at a higher level but usually lower than the first degree. In fact, technical and vocational education are usually a merger of technical education and vocational education (the inclusion of basic technical and scientific knowledge with the skill based vocational programme). Consequently, the programmes are planned to take care of the needs of the teaming unemployed youths and adults aspiring to own small-scale businesses and those wishing to take up employment in the private and public sectors of the economy.

The National Vocational Training Programme in Radio, Television (RTV) and Global System of Mobile (GSM) Communication Servicing is an aspect of vocational training, which will lead to the attainment of the National Vocational Certificate (NVC) in Radio, TV and GSM Servicing. Those who are eligible to enroll for the National Vocational Certificate Programme are Basic Education products, Post-Secondary students who are unable to gain access to higher education or who may have less than 5 credits and those out of school for a long time. The objectives of the programme as stated in curriculum are to equip the students with adequate training in electronics servicing and prepare and produce craftsmen who will be competent in carrying out installation,

Based on the Radio Television and Global System of Mobile (GSM) Communication Servicing Curriculum and Course specifications (2007), the curriculum of NVC programme consists of four main components which are:

1. General Education: - this includes courses in Communication Skills
2. Entrepreneurship and ICT, Foundation Studies (this includes courses in Basic Electricity and Electronics, Technical Drawing, Physics and Chemistry)
3. Professional Courses (these courses give the students' theoretical and practical skills needed to practice in the field)
4. Students Industrial Work Experience (SIWES).

(NBTE, 2007).

The structure of the NVC programme consists of six terms of classroom and workshop activities, and three terms of industrial attachment. The programme also consist of seven Modules which are: - Basic Electricity/Electronics, Electronics Circuits and Symbols, Electronics Amplifiers, Radio Communication, Television System, Satellite system and Mobile Communication and Global System of Mobile Communication (GSM).

The Basic Electricity/Electronics module is designed to provide the trainees with basic knowledge and practical skills in electricity/electronics. On completion of the module, the trainees should be able to:

- i. Define the structure of matter and its relevance to electricity
- ii. Describe and explain the sources of electromotive force
- iii. The constructional features of resistors, capacitors, inductors, and their values using colour codes
- iv. Explain the basic circuit laws and their applications
- v. Explain the principles of AC and DC quantities (current, voltage and impedance)
- vi. Explain the principles of magnetism and electromagnetism
- vii. Explain the basic principles of common electronics devices (diodes, transistors, IC's, including thermal devices
- viii. Explain the operation, uses and limitations of electrical measuring instruments.

(NBTE, 2007).

The Electronics Circuits and Symbols module will provide the trainees the knowledge and practical skills of constructing simple electronics circuits. On completion of this module, the trainee should be able to:

- i. interpret the basic principles of simple electronic circuits

- ii. Use the block and basic diagrams in circuit development
- iii. Define electronics signs and symbols
- iv. State the fundamentals of logic circuits
- v. Apply the principles and construction of power supply unit.

(NBTE, 2007)

The Electronics Amplifiers module is intended to provide the trainees with the basic knowledge and practical skills in amplifier circuits. On completion of this module, the trainees should be able to: Understand the principles of amplifiers and their operations, understand the principles of feedback circuits and understand the principles of operational amplifiers.

The Radio Communication module is intended to provide the trainees with the basic knowledge and practical skills in Radio Transmission and Reception. On completion of this module, the trainees should be able to:

- i. Explain the basic principles of radio transmission
- ii. Define the principles of operation of radio receiver and know how to trace faults and repair them in radio receiver.

(NBTE, 2007).

The Television System module is intended to provide the trainees with the basic knowledge and practical skills to diagnose and repair faults in common types found in various sections or stages in a Black & White/Coloured television. On completion of this module, the trainees should be able to:

- i. Apply the principles of transmission of TV signals, apply the principles of operation of black and white TV receiver
- ii. Apply the principle of colour television receiver and
- iii. Apply the principles of closed circuit TV

(NBTE), 2007).

The Satellite System Television System module is aimed at providing the trainees with the basic knowledge and skills in satellite transmission and reception. On completion of this module, the trainee should be able to:

- i. Use the basic principle of Satellite Transmission and Reception,
- ii. Describe the different types of Satellite Antennas and their applications and using Multi-Access techniques to installed them

(NBTE, 2007).

The Mobile Communication and GSM module is intended to provide the trainees with the basic knowledge and practical skills for servicing Mobile Phones. On completion of this module, the trainee should be able to: Understand the basic principles of Mobile communication system, know the principles of operations of Mobile Phones, Know the different types of Mobile Phones, their features and service providers in Nigeria and know the essential components of Mobile Phones and their functions.

(NBTE), 2007).

According to Onyegebu (2001), the development of capacity, potentials, self-actualization, appreciation and application of knowledge necessary to solve practical problems in this fast technological changing society cannot be achieved, if equipment, training techniques and devices are not adapted to the demands of the technological and scientific age in which trainees have to live and function. The main thrust of the provision of vocational training equipment and facilities is to assist the trainers to train the trainees and utilize the equipment and facilities to learn (Umunadi, 2010). Consequently, this would provide students with the necessary knowledge, skills and experiences. Thus, apparatus which students can use in translating theoretical principles into practical design for problems solving and making functional use of devices must be provided in adequate quantity (Umunadi, 2010).

Gombe state is one of the Thirty-Six states in Nigeria founded in 1<sup>st</sup> October 1996. The state has eleven local government areas. In 2003 the state government created eleven (11) vocational training centers, one in each of the local government areas, with the aim of training craftsmen in the different vocational trades to prepare youth for occupational fields and for effective participation in the world of work, see Appendix F on page 85. From 2003 to 2019 the vocational training centres had graduated thirteen (13) sets of craftsmen in the following vocational trades: - Agricultural Equipment and Implement, Mechanic Work, Animal Husbandry, Automobile and Mechanic Work, Bricklaying and Concreting, Electrical Installation and Maintenance Work, RTV and GSM Servicing, Fabrication and Welding, Fisheries, Basic Catering and Foot Services, Cosmetology, Leather Trade, Carpentry & Joinery and Computer Work.

Industrial Training Fund (2014) stated that, upon the prevalence of unemployment, the Federal Government, in 1986, established the National Directorate of Employment (NDE) with a view to alleviating unemployment and imparting employable skills into the unemployed persons through Vocational training Centre (VTC).

Quality in education is a multidimensional concept which should embrace all functions and activities, teaching and academic programmes, research and staffing, students, buildings, facilities, equipment, services to the community and academic environment (UNESCO, 1998). Quality education is knowledge and guidance that gives people the opportunity to adequately develop their skills and abilities in a way that translates to becoming productive members of society. Udom (1996) defined quality education as an educational situation where students are learning skills, which is not an exception in vocational and technical education, the learning skills are acquire in both theory and practical for this to be achieved their must be adequate equipment and tools in the workshop to enable students to acquire the required skills.

Equipment and tools are used in the training of students in the workshop in order to acquire practical skills. Anyakoha (1992) notes that the development of useful skills could be reinforced by the appropriate selection and use of learning facilities and resources. These facilities comprise workshop structures, working materials, teaching materials, workshop tools and equipment. Ndomi (2009) proffered that the provision of adequate workshop facilities would enhance the quality of practical skills development.

According to Edmond, Stephen and Obed (2016), the skills to be taught and learnt in the practical workshop are inclusive of the responsible and safe use of a range of tools, materials and techniques in the workshop. Ogundu (2009) asserted that tools are the instruments or devices that can be handled easily while carrying out special operations as well as instrumental and learning activities. They are used in demonstrating practice for learning of skills and for skill testing in special areas. Umar and Ma'aji (2010) assert that the availability of appropriate facilities enhances student learning by allowing students to be involved in demonstrations and to continue to build their skills through practice.

## **1.2 Statement of the Problem**

In Nigeria, despite the efforts of individuals, organizations, Local, State and Federal Governments in establishing Vocational Training Centres, it is regrettable that skill level is still low, and unemployment rife (Industrial Training Fund, 2014). This was supported by the report of National Bureau of Statistics (2012), that national unemployment rate increased to 23.4% in 2012 compared to 21.1% in 2010 and 19.7% in 2009. This is of concern to many analysts and economists as the figures increasingly suggest dwindling utilization of Human Resource at the nation's disposal. Therefore, it is important to note that participation in a Vocational Training Programme, graduating and getting a paper certificate is not all that matters, but the ability of the graduates of the

programme to apply the acquired skills in solving societal problems, enterprising and self-reliant is the major concern of the programme.

The trainers training the students on RTV and GSM servicing had the basic knowledge of electrical/electronic at Diploma, NCE or Degree level. The Federal Republic of Nigeria (FRN,2014) in National Policy on Education stated that the minimum qualifications required for teachers of Basic Education is NCE, and the teachers in the vocational training programme in Gombe State are having these qualifications, but the major statement of the problem is that students are graduating without acquiring practical skills needed of them to be self-reliant, the questions here is what went wrong for students graduating without acquiring the practical skills. Are the teachers in the programme having the required RTV and GSM servicing skills to impact to the students? Or is the programme having the required training facilities that meet up the standard? Afeti (2007) stated that, the quality of training in TVE institutions in Nigeria is low with undue emphasis on theory and certification rather than on skills acquisition and proficiency testing. Inadequate instructor training, obsolete training equipment and lack of instructional materials are some of the factors that combine to reduce the effectiveness of training in meeting the required knowledge and skill objectives. High quality skills training requires qualified instructors, appropriate workshop equipment, adequate supply of training materials and practice by the learners. This become the serious problems that lead the researcher to embark on this study to appraise the Gombe State Vocational Training programme with the view to providing solution to these alarming problems.

### **1.3 Purpose of the Study**

The purpose of the Study is to Appraise Vocational Training Programme in Radio, TV, and GSM servicing in Vocational Training Centres in Gombe State. The study will specifically determine:

1. The adequacy of tools for RTV and GSM servicing trade at the Vocational Training Centres in Gombe State
2. The adequacy of equipment for RTV and GSM servicing at the Vocational Training Centres in Gombe State
3. The technical skills required by trainers of RTV and GSM servicing trade in the Vocational Training Centres in Gombe State
4. The level of utilization of training tools and equipment in RTV and GSM servicing Trade in Vocational Training Centres in Gombe State.

### **1.4 Research Questions**

The following research questions were raised to guide the study:

1. What are the adequacy of equipment in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State?
2. What are the adequacy of tools in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State?
3. What are the technical skills required by trainers of RTV and GSM Servicing trade in Vocational Training Centres in Gombe State?
4. What are the level of utilization of training tools and equipment in RTV and GSM servicing Trade in Vocational Training Centres in Gombe State?

### **1.5 Hypothesis**

The following null hypotheses were tested at 0.05 level of significance.

- 1: There is no significant difference between the mean responses of Administrators and that of trainers on the level of skills required by trainers of RTV and GSM servicing trade at Vocational Training Centres in Gombe State.
- 2: There is no significant difference between the mean responses of Administrators and that of Trainers on level of utilization of training tools and equipment in RTV and GSM servicing Trade in Vocational Training Centres in Gombe State.

### **1.6 Significance of the Study**

It is hoped that the findings of this study would help to improve the teaching and learning process of Vocational Training Centres in Gombe State. The finding of the study will provide useful information to Students, Teacher, and Ministry of education, Vocational Training Programme Planners, industries, private sectors, and individual.

The students and teachers will benefit by getting awareness of the effectiveness of the programme and providing information on how to improve on the existing motivation given to the teachers and students.

The findings of the study will help the ministry of education to know the rate of employment generated by the vocational training programme, it will also help in knowing the effectiveness, adequacy and functional ability of the facilities at the training centres for the smooth implementation of the goals and objectives of the programme.

The findings of the study will also provide useful information to the vocational training programme planners regarding the state of the programme especially in the aspect of adequacy of the facilities and weakness of the programme which will serve as an ingredient for future planning and review of the programme curriculum.

The study will also be useful to the individual and private organization by providing information about the activities of the vocational training centres in RTV and GSM servicing trade in Gombe state, which will make them self-employed and also employers of labour.

### **1.7 Scope and Delimitation of the Study**

This study is designed to appraise the vocational training centres in Gombe state particularly the Radio Television and Global System of Mobile communication servicing trade. This study is therefore delimited to appraisal to workshop tools and equipment and technical skills required by trainers for RTV and GSM servicing in Vocational Training Centres in Gombe State.

### **1.8 Operational Definition of terms**

1. **RTV and GSM servicing trade:** is an aspect of vocational training, which will lead to the attainment of the National Vocational Certificate (NVC) in Radio, TV and GSM Servicing.
2. **Vocational Training Centres:** place where practical skills in RTV and GSM servicing is acquired.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter presents literature and previous studies that were reviewed in relation to the study. The review is done under the following subheadings:

2.1 Theoretical Framework

2.2 Radio Television and Global System of Mobile Communication Servicing Trade

2.3 Concept of Appraisal in Vocational Education in Nigeria

2.4 Availability of Equipment and Tools in Radio Television and Global System of Mobile Communication Servicing Trade

2.5 Qualifications and skills of Trainers of Vocational Education and Training.

2.6 Utilization of Tools and equipment in VTC

2.7 Review of Related Empirical Studies

2.8 Summary of Literature Review

#### **2.1 Theoretical Framework**

Theoretical framework provides the basis for which a study is hinged on. This study is hinged on theory of vocational training propounded by Prosser (1949) state that vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits require in the occupation itself. According to Osuala (2004), rightful and adequate skills acquired by individuals in VTE will ensure effective and active participation in the world of work. This is supported by Umunadi (2007) who stated that Electronics Works Trade Training provides the individuals with the practical work skills in radio, television, telecommunication, electronic devices and circuit services necessary for an individual to cope with the emerging needs of the society.

This theory is relevant to this study as it emphasizes effective training of the beneficiaries of in RTV and GSM repair and servicing. In nutshell, this research will appraise the vocational training programme in Radio Television and GSM servicing trade in Vocational Training Centres in Gombe State in order to find out whether the objectives of the programme is maintained since it is made to prepare students in both thinking habit and manipulative skills.

#### **2.2 Radio Television and Global System of Mobile Communication Servicing Trade**

The National Vocational Certificate in Radio, TV and GSM Servicing trade is a programme designed to produce craftsmen who will possess adequate practical skills and knowledge in the servicing of radio, television and GSM electronic gadgets. The general

eligibility for Vocational Training Programme and enrolment in RTV and GSM Servicing Trade, are Basic Education products, Post-Secondary students who are unable to gain access to higher education, who may have less than 5 credits and those out of school. The curriculum of the programme consists of four main components. These are: General Studies, Foundation Studies, Professional Courses, and Students Industrial Work Experience (SIWES). The graduates of the programme on completion should be craftsmen who will be competent in carrying out installation, maintenance and repairs of satellite dishes, wireless phones, and radio and television receivers (NBTE 2007).

NBTE (2007) stated that, the National Vocational Certificate (NVC) programme which would lead to the attainment of the National Vocational Certificate in Radio, TV and GSM Servicing was in flexible modular curricula. The curriculum structure of the NVC programme consists of nine (9) terms in which six (6) terms are dedicated for classroom and workshop activities in the school, and three (3) term of industrial attachment. For the industrial attachment, the students will be required to be attached to relevant organization for a period of three months in each part for supervised and graded industrial work attachment to enable them have the relevant experience in the profession. Hence, term three of each part is dedicated for the attachment. The curriculum prescribes 80% practical content 15% Theoretical studies and 5% General studies components. The curriculum tables for NVC in RTV GSM repairs are shown in Appendix D on page 81.

Umunadi (2007) stated that Electronics Works Trade Training provides the individuals with the practical work skills in radio, television, telecommunication, electronic devices and circuit services.

### **2.3 Concept of Appraisal in Vocational Education in Nigeria**

Conceptually, appraisal refers to performance measures designed by the authorities for assessing the performance of educational institutions with a view to ensuring that the learning outcomes meet the needs of each society (Igborgbor, 2012; Onyesom and Ashibogwu, 2013). Formal education from developmental perspective is an instrument for attaining economic growth and technological progress judging by the experience of developed industrialized nations (Onyesom and Ashibogwu, 2013). This study is intending to carry out an objective based appraisal to determine how set standards and quality are achieving in Vocational Training Programme particularly in RTV and GSM Servicing Trade. The term appraisal was defined as the critical examination of The objectives, attitudes, procedures and institutional control systems with a view to ensuring that set standards and quality are maintained in a programme. (Onyesom and Ashibogwu, 2013).

To ensure that quality and standards are maintained, different nations and Vocational and Technical Education Institutions do have in place quality assurance mechanisms that suite their socio-economic and educational aspirations. For instance, the government of Nigeria established supervisory agencies to enforce quality assurance in institutions. The National Universities Commission (NUC) maintains oversight functions over the universities; the National Board for Technical Education (NBTE) oversees the polytechnics, Technical and Vocational colleges. The National Commission for Colleges of Education (NCCE) takes charge of the Colleges of Education. These agencies have over the years developed the Minimum Academic Standards (MAS) as benchmark for quality assurance and institutional self-assessment (Onyesom and Ashibogwu, 2013). The MAS is used by supervisory agencies for institutional accreditation; it covers among others: teaching quality/effectiveness, floor space for lectures, minimum laboratory facilities per students, minimum library space, minimum staff/student ratio, minimum teaching facilities/equipment and office accommodation (Uvah, 2005).

The European Centre for the Development of Vocational Training (CEDEFOP) stated that measuring the outcomes of skills development systems is not straightforward. Poor outcomes are more readily spotted, in the form of mismatches, shortages and gaps. Good outcomes are easily lumped into other indicators, for example low unemployment or increased productivity, exports or investment. Nevertheless, measuring the outcomes of skills systems and policies is essential in order to monitor and improve their effectiveness and relevance. Four key elements of a sound quality measuring process are:

A Quality assurance, based on employers' and trainees' feedback, to capture the labour market outcomes of training: this represents the monitoring of performance that training institutions, students, their families, their prospective employers and taxpayers need most;

- a. Regular and timely labour market information on current demand, broken down by occupation and skills level, including early identification of sectorial trends and of changes in technology and occupations leading to changing skills composition;
- b. Quantitative and qualitative forecasting of future demand for skills;
- c. Channeling of information to training providers, career guidance and employment

Service to enable them to adapt training provision to changing demand. The European Centre for the Development of Vocational Training (CEDEFOP) (2013).

This review is relevant to this study because the study is on appraisal of vocational training programme in Radio, Television and GSM servicing. The review was done to provide insight into a concept of appraisal in the vocational training centres

#### **2.4 Adequacy of Equipment and Tools in Radio Television and Global System of Mobile Communication Servicing Trade**

International Labour Office Geneva (2010), in an article titled Training Strategy stated that, a great deal of effort is required to make sure that skills development systems deliver both the quantity and the quality of training needed. This entails in the first instance an adequate supply of qualified teachers, trainers, directors of training institutions, and master crafts persons to take on apprentices; the provision of opportunities for them to periodically upgrade their own skills; and conditions of work comparable with those in industry so as to attract the most talented staff. Anyakoha (1992) notes that the development of useful skills could be reinforced by the appropriate selection and use of learning facilities and resources. These facilities comprise workshop structures, working materials, teaching materials, workshop tools and equipment. In the same vein, Uzoagulu (1992) warns that where equipment and tools are not functional or where their provision is inadequate, technology training programmes will suffer and will lead to the production of unskilled personnel who are unemployable and unproductive.

Ojimba (2012) stated that most vocational and technical education departments in Nigeria do not have laboratories or workshops space let alone usable equipment and facilities and where they exist, they are grossly inadequate, as the laboratories only have the items or equipment that were provided when the departments were established. It is however most surprising to know that most technical education departments still depend on engineering workshop and lecturers to teach technical education concepts. The available facilities, programme as at today are inadequate quantitatively and qualitatively and besides they are obsolete. Ndomi (2009) proffered that the provision of adequate workshop facilities would enhance the quality of practical skills development.

To ensure quality in the graduates of Vocational Certificate in Radio, TV and GSM Servicing, the National Board for Technical Education (2007) had set the minimum standard for Operating Vocational Education Programme in this trade. Thus the list of training tools and equipment for a class of 25 students (in 5 groups) are shown in Appendix E on page 84.

The National Board for Technical Education (2007) also specified a list of consumable materials which are to be provided in sufficient quantities to the groups of students (trainee) for the successful operation of the RTV and GSM Servicing Trade. The materials are in Appendix E on page 84. This reviewed is related to this study, the review is based on the adequacy of equipment, which is in line with the present study research purpose two, in order to find out how adequate is the equipment in RTV and GSM

servicing programme of VTC in Gombe State and recommend possible solution for improvement

Tools are on the other-hand resources used in transmitting knowledge in the workshop or in the field. Ogundu (2009) asserted that tools are the instruments or devices that can be handled easily while carrying out special operations as well as instrumental and learning activities. They are used in demonstrating practice for learning of skills and for skill testing in special areas. A major problem confronting vocational training is inadequate quantities of equipment, machines, tools and other training materials (Osuala, 2004). In addition, the maintenance of equipment and machines is impeccable. Umar and Ma'aji (2010) assert that the availability of appropriate facilities enhances student learning by allowing students to be involved in demonstrations and to continue to build their skills through practice. To illustrate this worsening situation, Puyate (2002) maintains that in Nigeria the present state of technology education facilities is very poor; there is no planned means to repair broken tools and equipment or means of purchasing new equipment and tools. This author adds that there is little or no concern on the part of government, teachers and students for the improvement of the present state of facilities. Anyakoha (1992) notes that the development of useful skills could be reinforced by the appropriate selection and use of learning facilities and resources. These facilities comprise workshop structures, working materials, teaching materials, workshop tools and equipment. In the same vein, Uzoagulu (1992) warns that where equipment and tools are not functional or where their provision is inadequate, technology training programmes will suffer and will lead to the production of unskilled personnel who are unemployable and unproductive.

Letsie (2003) points out that as much as technology subjects offer an array of vocationally focused subjects with a practical orientation, most South African schools depend on theoretical studies with little access to technological facilities linked to apprenticeship. Skills development in the South African context has gone through many changes over the last decade, yet the skills development gap is still broad. South Africa is expected to be an active global player and tackle the burden of unemployment and poverty (Steinaker and Key, 2014). Technical high schools or comprehensive schools are expected to contribute to skills development through practical, hands-on vocational and technical education. So far, it is not very clear to what extent technological practical subjects at schools in South Africa produce skilled youth employable by various industries.

To ensure quality in the graduates of Vocational Certificate in Radio, TV and GSM Servicing, the National Board for Technical Education (2007) had set the minimum

standard for Operating Vocational Education Programme in this trade. Thus the list of training tools and equipment for a class of 25 students (in 5 groups) are shown in Appendix E on page 84.

The National Board for Technical Education (2007) also specified a list of consumable materials which are to be provided in sufficient quantities to the groups of students (trainee) for the successful operation of the RTV and GSM Servicing Trade. The materials are in Appendix E on page 84. The review was done base on the adequacy of tools, which is in line with the present study research purpose two, in order to find out how adequate of the tools in RTV and GSM servicing programme of VTC in Gombe State and recommend possible solution for improvement

Adebisi and Oni (2012) stated that, in every training programme, there is always the trainee, the trainer, and the job being trained for. However, for effective and meaningful training of any kind to be in place, there must be equipment or facilities for training. The need to provide adequate training equipment in all the accredited Vocational Training Centres (VTC) for the training of the prospective students. Training facilities can be considered as the life wire of any meaningful training. He further stressed that, the success of the implementation of vocational training will largely depend on the availability of the necessary equipment and facilities. The provision of equipment and the effective utilization of the equipment and facilities should be given priority attention to ensure impartation of functional and productive vocational skills into the prospective students. A major problem that has been confronting vocational and technical education is lack of basic instructional facilities for training (Umunadi, 2010). One of the major problems in Nigeria education system has been lack of materials and necessary equipment in teaching the vocational, science and technology subjects. Yaduma and Moses (2005) who concluded that vocational training centers and technical college in Bauchi state lack training facilities.

## **2.5 Qualifications and skills of Technical Vocational Education and Training Teachers**

Teachers should not only have academic qualification and practical real lifework experience; they must be trained to be able to convert this experience into their teaching concepts (Stolte, 2009). Qualification means the active sum total of the all knowledge, abilities, skills that the individual must have in order to successfully carry out tasks and duties (Nanga 2007). Qualification here refers mostly to the education and training of the individual measured through the skill and ability to execute duties (Bjornavold 2000). The qualifications of teachers at technical and vocational schools and training centers are

different from those of the general education sector (Schrembs, 2001). In Germany, for instance trainers must have the required technical qualification to train. They must have trained for occupation in which they are to act as trainers or have a comparable qualification. Moreover, they will only be registered as trainers if they have an examination pass documenting their occupational and work teaching qualifications European Centre for the Development of Vocational Training (CEDEFOP 1995).

The quality of education of a nation could be determined by the quality of her teachers. Okuruwa (1999) found that, policy investment on quality of teachers is related to improvement in students' performance. Abe & Adu (2013) and Wiki (2013) opined that, a teaching qualification or teacher qualification is one of a number of academic and professional diplomas, certificates and degrees that enables a person to become a registered teacher in primary or secondary schools. Such qualifications include, but are not limited to, the Postgraduate Certificate in Education (PGDE), the Professional Diploma in Education (PDE), Bachelor of Education (B.Ed.) and Nigeria Certificate in Education (NCE). In Gombe State, teachers who are academically qualified and those that are professionally qualified are engaged to carry out instructional process (Ahiazu, Prince and Will, 2011). Academically qualified teachers refer to those who have academic training as a result of enrolment into educational institution and obtained qualifications such as HND, B.Sc, B.A, and M.A, while professionally qualified teachers are those who got professional training that gave them professional knowledge, skills, techniques, aptitudes as different from the general education (Edu and Kalu, 2012). They hold degrees like, B.Ed., B.Sc. Ed, B.A. Ed, and M.Ed.

Professional development is activities that develop an individual's skill, knowledge, expertise and other characteristics as a teacher (Organization for International Cooperation and Development OECD, 2009). It is a conscious and systematic step to ensure teachers' upgrading and continuous self-improvement (Oluremi, 2013). Professional development is critical to the retention and improvement of any teacher in the classroom (The American Association of Physics Teachers, 2009). Professional development is an aspect of teachers' qualifications that is paramount for an effective classroom teacher. Oluremi (2013), said that professional development enhances and improve teachers' teaching skills. The Nigerian educational system requires all teachers in all schools to be professionally and academically qualified (Hamilton and Ekeke, 2013). The National Policy on Education (FGN, 2004) stipulates the minimum qualification for entering the teaching profession in Nigeria as the Nigerian Certificate in Education NCE (Akinbote, 2007, Ibidapo and Obe,

2007). It is on these backgrounds that under Act 31 of 1993, government setup the Teacher's Registration Council of Nigeria (TRCN) aimed at controlling and regulating the practice of the profession (Hamilton and Ekeke, 2013).

Technical and Vocational Education (TVET) systems are increasingly becoming recognized by governments as very important for economic development through their focus on skills for the labour market. They are also seen as instruments of social policy, for example to assist those in particular social groups, such as those in poverty, or who lack marketable skills (Basu, 1997).

## **2.6 Utilization of Tools and Equipment in VTC**

Obafemi (1999) attributed this development to lack of proper planning and arrangement of equipment and materials and the mal-functioning of available equipment and machinery, stressing that sometimes even when tools and equipment are available, they are somewhat underutilized. Their importance depends on what the teacher is able to make of them. Ogbuegbuna and Okwenu (1998) stressed that "One of the reasons why available materials are not used by many teachers in schools and colleges is that they lack the necessary skills to operate them." Buttressing this point, Buba (1998) and Aggarwal (2002) argued that the manipulative skill of technical teachers is indispensable in the effective utilization of facilities for implementing programmes in technical/vocational education. For effective instructional delivery, (Mamman (2000), Aggarwal (2002), Sampath, Pannelselvan and Santhanam, 2003) are unanimous in their views that technical teachers need to adopt the following methods, among others: selection of facilities in line with behavioural and instructional objectives, presentation in which teachers themselves are familiar with instructional facilities and their use, and physical control in which teachers carefully handle instructional materials such as to guarantee re-use in the next lesson. In fact, instructional facilities have been discovered to be very effective in enhancing students' performance (Alio, 2001; Akpa, 2003). On the other hand, problems relating to availability, adequacy and skills in utilizing workshop and laboratory facilities in our technical schools have led to a decline in students' performances. Most of the schools are unable to meet acceptable standards of performance (Abubakar, 2000; Okoro, 2006). Ugwoke (2011) who stated that tools, equipment and other facilities in Nigeria institutions were not extensively utilized

Akinfolarin, Ajayi and Oloruntegbe (2012) state that in Agricultural Science Department, resources such as honey extractor, bee keeping equipment and cassava

pelleting machine were inadequate, also in Fine and Applied Art, calliper mental was inadequate. Technical Education Department was inadequate with shaping machines, drafting machine and computer aided rafting. Adequacy of resources could be the reason for good learning outcome, particularly if the lecturers utilised such resources well. The inadequacy of some of these facilities could be as a result of aging, state of disrepair or being obsolete as they are no more in use and probably source of electricity to run the machines might be very poor. Nevertheless, the adequacy of most of the resources will only be meaningful if they are well utilised. As succinctly put by Ivowi (1982), that where resources are adequate, most of the users (teachers) do ignore them, especially during the practical lessons in the laboratory. It must also be stressed that the inadequacy of some of the resources could affect perceived students' learning outcome.

Akinfolarin ,Ajayi and Oloruntegbe (2012) further state that it is obvious that the available spaces in Vocational and Technical Education in the Colleges of Education were well utilised. This could be as a result of lecturers' efficiency and student commitment to study. It is not excess that space utilisation contributes significantly to effective teaching and learning. As remarked by Morphet (1987), "the available spaces help pupils to learn better and enhance efficiency, the available physical resources in some of the Vocational and Technical Education departments in the South West Colleges of Education were under-utilised. These under-utilised physical resources were found in Agricultural Science Department such as drawing room, Business Studies Department (duplicating machine and binding machine, Technical Education Department (technical drawing equipment). The underutilisation of some of these physical facilities could be attributed to factors such as shortage of lecturers or inefficiency or lack of seriousness or commitment on the part of students. Other factors could be inadequate electricity and portable water supply for the use of these physical facilities.

Okwori, Adamu, and Odo, (2013) showed that Woodwork graduates of technical colleges in Niger State used all the woodworking machines listed except hand saw machine, tenoning machine, mortiser and thicknesser. They used all the hand tools such as hammer, screw driver, hand plane, electric jig saw, scraper, pincer, plier, try square and spanner. It was recommended that State Government should provide modern machines for improving practical skills of woodwork students and Woodwork teachers should teach students how to apply formica on wood surfaces.

## **2.7 Review of Related Empirical Studies**

Umar and Maaji (2010) carried out a study on repositioning the facilities in vocational training centres workshops for efficiency: A case study of north central Nigeria. This study focuses on assessing the facilities in Government Technical Colleges workshops in the context of a developing country. A descriptive survey design was adopted. Two research questions and a hypothesis were formulated to guide the study. A 35-item questionnaire was developed based on the National Board for Technical Education (NBTE) standards on vocational training centres workshops, and was validated by three experts. Data was collected from 101 administrators, 140 teachers, and 24 workshop personnel randomly sampled and stratified along trades in 19 Government Technical Colleges in North Central Nigeria. Mean was employed to answer the research questions while one-way analysis of variance (ANOVA) was employed to test the hypothesis using Statistical Package for Social Sciences (SPSS) for analysis. Results revealed that administrators, teachers, and workshop personnel shared similar views on inadequacy of facilities in Technical College workshops. It was therefore recommended that: The private sector should be encouraged to initiate and participate in the provision of facilities using such methods as build operate-and-transfer (BOT), build own-operate and transfer (BOOT) and rehabilitate-operate and transfer (ROT); special intervention funds should be set aside by Government for procurement of workshop facilities to technical colleges, such channels may include Education Tax Fund (ETF) as practiced in Nigeria; Non-Governmental Organizations (NGOs), Parent Teacher Association (PTA), and Community Based Organizations (CBOs) should be asked for support in supplying relevant facilities to the workshops as obtained in some nations; and that a specific percentage of income tax generated annually by the Government should be utilized for provision of workshop facilities in technical colleges.

The reviewed study is on Repositioning the facilities in Technical college workshops for efficiency but the present study is on an appraisal of vocational training programme in radio, television and GSM servicing in vocational training centres in Gombe, the two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study will go further to identify the level of skills in RTV and GSM servicing possess by the trainers and the training facilities in RTV and GSM servicing trade are the well utilize in vocational training Centre in Gombe State.

Arabayi (2009) conducted a study on appraising instructional materials and evaluation strategies in teaching of clothing and textiles. The purpose of the research was

to find out the appraisal of students of the adequacy of instructional materials and evaluation strategies used in the teaching of Clothing and Textiles in tertiary institutions in Delta State, Nigeria. The sample consisted of 198 students from a target population of 660 students enrolled in Home Economics in four Tertiary Institutions during the 2004/2005 academic year. The analysis of the data was based on 157 usable questionnaires which were administered and returned by the respondents. The result revealed that students gave satisfactory appraisal to the adequacy of instructional materials and the evaluation strategies used by the lecturers. The differences in the means reported by the students in their appraisal were found not to be statistically significant for both adequacies of instructional materials and evaluation strategies adopted. Based on the findings, some recommendations were made: That students' appraisal of instruction should be encouraged in the teaching of Clothing and Textiles. This is a necessary tool for the improvement of the quality instruction as was revealed from the study. Students' appraisal of instructions should be adopted as a strategy for improving the quality of instruction through the provision of feedback on Students 'appraisal of the quality of instruction to lecturers. This information would help the lecturers to know the areas of strengths and weaknesses so as to encourage the lecturers in their areas of strength. Also it would serve as a way of checking lecturers in areas of weaknesses so as to improve. School authorities should encourage the use of Students in appraising the quality of instructions, since the Students are the consumers of the educational enterprise and their judgements is very vital for improving the quality of instruction.

The reviewed research is on appraising instructional materials and evaluation strategies in teaching of clothing and text but the present study is on an appraisal of vocational training programme in radio, television and GSM servicing in vocational training centres in Gombe, the two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study will go further to identify the level of skills in RTV and GSM servicing possess by the trainers and the training facilities in RTV and GSM servicing trade are the well utilize in vocational training Centre in Gombe state.

Adebisi and Oni (2012) carried out a study on Availability of vocational training facilities for National Directorate of Employment in Nigeria. The study adopted the survey design. Sample comprised 1, 200 trainees, 420 trainers and 120 ex-trainees from six states in Southwestern Nigeria using stratified and multi-stage sampling technique. Three instruments titled "NDE Trainees' Questionnaire (NTeQ), "NDE Trainers' Questionnaire

(NTrQ), and ‘NDE Ex-trainees’ Questionnaire (NTexQ) for trainees, trainers and ex-trainees respectively were used to collect data. Data were analyzed using descriptive statistics. The results showed that the NDE had about 30 job categories, and that there was inadequate availability of training equipment for the NDE vocational training programmes. The study, among others, recommends that NDE should ensure that trainers procure necessary training facilities for proper impartation of employable skills into the trainees.

The reviewed research is on Availability of vocational training facilities for National Directorate of Employment in Nigeria but the present study is on an appraisal of vocational training programme in radio, television and GSM servicing in vocational training centres in Gombe state, the two researches have similar purpose of identifying the adequacy of facilities in the school or centre but this study would identify the level of skills in RTV and GSM servicing possessed by the trainers and the adequacy of tools and equipment in RTV and GSM servicing trade are the well utilize in vocational training Centre in Gombe state.

Research and Curriculum Development Department (R & CDD) and Industrial Training Fund (ITF) (2014) carried out a study on appraisal of skill acquisition Centres in Nigeria. The purpose of the Study was to appraise Skills Acquisition Centres in Nigeria and identify implications for industrial development. To facilitate generation of data, the Study explored the following: Vocational Trades obtainable at the Skills Acquisition Centres, Vocational Trades in Demand, availability of equipment and facilities, availability of curriculum, six Research Questions were posed. Target population of the Study consisted of all ITF Training Development Officers and Trainees of ITF Training Programmes. Three thousand two hundred and ninety-nine (3299) respondents, drawn from two categories of the population were used as Sample for the Study. The research design adopted was Cross-sectional survey design. Two sets of questionnaires were

employed for the study. These instruments were designed, developed and validated. Data gathered were analyzed using percentages and mean statistics. Major findings showed that Objectives of ITF Training Programmes were achieved at ‘‘High’’ level; ITF Training Programmes have improved Participants’ performance levels on their jobs; Irregular conduct of Identification of Training Needs is an inhibiting factor on the impact of ITF Training Programmes. Finally, it was recommended that ITF should regularly carry out Identification of Training Needs (ITN) and Post-Evaluation for its Client Organizations and review its Training packages.

The two researches have similar purpose of identifying the availability of facilities in the school or centre but this study would identify the level of skills in RTV and GSM servicing possessed by the trainers in vocational training Centre in Gombe State.

Ogbuanya, Akintonde and Bakare (2017) carried out a research on Assessment of Practical Skill Training of vocational training centres in Electrical and Electronics Trade in Osun State, Nigeria This study aimed to assess the practical skill training of Technical College students in Electrical and Electronics trades in Osun State of Nigeria. A survey research design was adopted for the study. The population consisted of 15 principals (Vice principals inclusive), 16 heads of electrical and electronics Department and 43 teachers, Technical Colleges of Osun State. The entire population was used. Six research questions and three null hypotheses were formulated based on the specific purpose of the study. The data for the study were collected by means of structured questionnaire developed by the researchers and validated by the three lecturers from the Department of Vocational Teachers Education, University of Nigeria, Nsukka. The reliability of the instrument was established by the use of Cronbach Alpha reliability index. The data collected were analysed using mean scores to answer the research questions while the three null hypotheses were tested using t-test at 0.05 level of significance. It was found that teachers were not adequate in terms of practical experience and numerical strength. Most of equipment/facilities were not put to effective use to train the students. Most of appropriate teaching methods for teaching Vocational Technical Education subjects were not used to teach the students in the Technical Colleges. The hours allocated for practical were inadequate. The method of evaluation of practical in Electrical and Electronics were very poor. On the bases of the findings, it was recommended among others, that equipment/facilities should be supplied to the electrical and electronics section of the technical colleges and adequate number of qualified teachers should be recruited to handle all the courses offered in electrical and electronic in the technical colleges.

The two researches have similar purpose of identifying the availability of facilities in the school or centre but this study will go further to identify the level of skills in RTV and GSM servicing possess by the trainers and the training facilities in RTV and GSM servicing trade are the well utilize in vocational training Centre in Gombe State.

Godwin, Omofonmwan and Samson (2013) Availability and adequacy of resources for skills acquisition in digital electronics repairs in the National Open Apprenticeship scheme in Edo state, Nigeria. This study was carried out to assess the availability and adequacy of provision of resources for skills acquisition in maintenance and repairs of

digital electronics for the National Open Apprenticeship Scheme in Edo State. The study was guided by four purposes, from which four research questions were raised. The descriptive survey research design was employed for the study. The population of the study was 312. A sample size of 220 was drawn, which consisted of trainees, trainers and supervisors of the scheme. All the trainers were selected while proportionate random and convenience sampling techniques were used in selecting the trainees and supervisors respectively. A close ended questionnaire, validated by three experts with an alpha value of 0.74, was used for data collection. Simple percentage, mean and standard deviation were employed for data analysis. The findings showed that there are human resources for the scheme but tools and equipment are not sufficient as required, and are not provided at all by government in some cases. Recommendations were made, one of which is that state and local governments should unanimously join the federal government to run the scheme.

The reviewed research is on Availability and adequacy of resources for skills acquisition in digital electronics repairs in the National Open Apprenticeship scheme in Edo state, Nigeria. but the present study is on an appraisal of vocational training programme in radio, television and GSM servicing in vocational training centres in Gombe, the two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study would identify the level of skills in RTV and GSM servicing possessed by the trainers and the training facilities in RTV and GSM servicing trade.

Manabete and Makinde (2016) investigated the availability and utilization of Electrical Installation and Maintenance Works Programme of technical colleges in the North-East Geo-Political Zone of Nigeria. Two purposes of study were examined. Two research questions were answered and two hypotheses were tested. The population of the study was 808, made up of 24 principals, 58 teachers, 18 workshop attendants and 708 students. The study chose 40% of the population as the sample for the study, which stood at 398, made up of 10 principals, 26 teachers, 10 workshop attendants and 352 students. A structured questionnaire collected data from respondents. It was validated by five experts. A trial test using the test re-test method established the coefficient of stability of the instrument which stood at 0.94. After the administration of the instrument, 440 valid copies were obtained, made up of 10 principals, 22 teachers, 10 workshop attendants and 308 final year students. Analysis of the results was carried out on the valid copies of the instrument. Mean and standard deviation were used to answer the research questions. The analysis of variance was used to test the hypothesis at 0.05 level of significance. Findings

of the study showed that equipment, tools and measuring instruments were moderately available. Students' level of utilization of equipment, tools and consumable materials during practical lessons was of moderate performance. Students' level of utilization of measuring instruments during practical lessons was low in 12 out of 15 measuring instruments. On the whole, students' level of utilization of measuring instruments during practical lessons was of low performance. A significant difference did not exist, at the chosen probability level, in the mean responses of principals, teachers and workshop attendants on the extent to which facilities for the Electrical Installation and Maintenance Works Programme were available. At a 0.05 level of significance, there was no significant difference in the mean responses of teachers, workshop attendants and students on the level of utilization of consumable materials by students during practical lessons. The study suggested among others, an improvement in facilities supply and an increase in students' practical activities for enhanced performance.

The two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study identified the level of skills in RTV VTC in Gombe state.

Medugu, Abdulkarim and Bashir (2017) Assessed Training Facilities of Electrical/Electronic Trade at National Directorate of Employment's Skills Acquisition Centres in Adamawa State, relating to their availability and adequacy. The study area was three (3) NDE skills acquisition centres which are located in Michika, Mayo Belwa and Yola South Local Government Areas in Adamawa State. The study employed descriptive survey design, data were collected with checklist of 100 items, for 3 respondents, the centre managers. Three experts validated the questionnaire and the questionnaire were trial tested using test-retest method of estimating reliability, its reliability coefficient was found to be 0.84. percentage were used to answer research question 1 and discriminate analysis and percentage was used to answer research question 2. The findings of the study revealed that the training facilities are not available as required by NDE minimum standard at NDE skills acquisition centres in Adamawa State, the available ones are not adequate they are in short supply. It was recommended among others that all the skills acquisition centres in the area of study should be adequately equipped with the needed training facilities. These facilities should be up-to-date in both quality and quantity for effective training to take place

The two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study identified the level of skills in RTV and GSM servicing

possessed by the trainees and the training facilities available in RTV and GSM servicing trade workshop.

Yaduma and Moses (2005) undertook a survey of workshop and laboratory facilities in vocational training centres and technical colleges in Bauchi State, Nigeria. Using a descriptive survey design, a structured questionnaire was administered to administrators, teachers and workshop attendants. The study discovered that the schools lacked workshop and laboratory facilities and concluded that students had no practical skills and experience as it was difficult to undertake practical work without the facilities.

The two researches have similar purpose of identifying the adequacy of facilities in the school or Centre but this study identified the level of skills in RTV and GSM servicing possessed by the trainers and the training facilities in RTV and GSM servicing trade.

## **2.8 Summary of Literature Review**

In this chapter, literature relating to this study were reviewed to sharpen the researchers understanding of study. This study is hinged on Prosser (1949) state that vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits require in the occupation itself.. The study also reviewed on Adequacy of Equipment in RTV and GSM Servicing Trade, Qualification and skills of TVET Teacher, Radio television and global system of mobile communication servicing trade, Concepts of Appraisal in Vocational Education in Nigeria, utilization of tools and equipment in vocational training centre

Based on the reviewed empirical studies, it was discovered that several researches have been conducted on vocational training centres, but none of them was on vocational training centre in Gombe State.

## **CHAPTER THREE**

### **METHODOLOGY**

This chapter presents the methodology employed in carrying out the study. The chapter is presented under the following sub-headings: Design of the study; Area of the Study; Population of the Study; Sample and Sampling Technique; Instrument for Data Collection; Validation of Instrument; Reliability of Instrument; Method of Data Collection; Method of Data Analysis;

#### **3.1 Design of the Study**

The design of the study was descriptive survey research design. Descriptive survey design type is used in situations where the study employs questionnaire to determine preferences, attitudes and perception of people about an issue (Best and Kahn, 2013). This research design therefore is appropriate for the study since it seeks to find opinions of teachers and students of RTV and GSM Servicing trade in vocational training centres in Gombe State concerning the state of vocational training programme in Radio, Television and Global System of Mobile Communication (GSM) Servicing in vocational training centres

#### **3.2 Area of the Study**

The area of the study is Gombe state, which is located in the North-East geo political zone of Nigeria. The state shares boundary with Adamawa to the East, Bauchi to the south, Taraba to the west and Borno Yobe states to the north. Gombe state is located between latitude 10° 15 N and longitude 11° 10 E (Wikipedia 2012). The state is divided into three educational zones for supervisory purposes; the educational zones are Gombe north, Gombe central and Gombe south educational zones. The state has eleven local government areas and thirteen vocational training centers. Gombe south, and Gombe north educational zones each has five vocational training centers while the other three are located in Gombe central educational zone.

#### **3.3 Population of the Study**

The population of the study was 55 respondents, consisting of 42 trainers and 13 administrators (principals). They were used to appraise the Vocational training programme in Radio, Television and Global System of Mobile Communication (GSM) servicing in Vocational Training Centres in Gombe State. The total number of the vocational training centres were 13 and they were located in the three educational zones of the state, namely: Gombe South, Gombe Central and Gombe North (see Appendix C )

### 3.4 Sample and Sampling Technique

The population of this study was manageable. Therefore, there was no sampling so the entire population was used.

### 3.5 Instrument for Data Collection

The instruments for data collection was a checklist and the researcher- constructed structured questionnaire named “Vocational Training Centre Appraisal Questionnaire (VOTCAQ)”. The questionnaire comprised of Seventy-Six (76) items and it was divided in to five sections: A, B, C, D and E. Section A sought the biodata of the respondents, section B which contains 28 items, sought for data on the availability of tools in RTV and GSM servicing in Vocational Training Centre in Gombe State. Section C which contain 11 items, sought for data on the availability of equipment in RTV and GSM in Vocational Training Centre in Gombe State. Section D which contains 15 items, sought for Technical skills required by trainers in RTV and GSM Servicing trade at the Vocational Training Centres in Gombe State and Section E which contains 23 items, sought for the level of utilization of training tools and equipment in RTV and GSM servicing trade in Vocational Training Centre in Gombe State. The check list was used to measure availability based on the NBTE standard. The cutoff point of 50-100% = adequate, 40-49%= moderately adequate and 0- 39% = not adequate was used on section B and C. Section D measures the extent of requirement of tools and equipment using true limit of numbers as follows (Required(R) =3.50 - 4.00, Moderately Required (MR) =2.50 - 3.49, Moderately Not Required (MNR) =1.50 - 2.49, Not Required (NR) = 0.00 - 1.49, Section E measures the level of utilization using a four-point rating scale. (Utilized (U) =3.00 - 4.00, moderately utilized (MU) =2.50 – 3.49, Lowly utilized (LU) = 1.50 – 2.49, Not utilized (NU) = 0.00 – 1.49. These were used to determine the trainees’ and trainers’ opinions on the perception of trainees and trainers on the practical skills in RTV and GSM servicing trade in Gombe State Vocational Training Centers. Decisions on responses to the items in Sections B and C were based on the cutoff point of

50-100% = Adequate

40-49% = Moderately Adequate

0-39% = Not adequate

Section D was based on a true limit of numbers:

Required (R) = 3.50 - 4.00

Moderately Required (MR) = 2.50 – 3.49

Moderately Not Required (MNR) = 1.50 – 2.49

Not Required (NR) = 0.00 – 1.49

Section E will be based on the 4-point scale:

Very highly utilized (VHU) = 3.50 – 4.00

Highly utilized (HU) = 2.50 – 3.49

Low utilized (LU) = 1.50 – 2.49

Not utilized (NU) = 0.00 – 1.49

### **3.6 Validation of the Instrument**

Face validation of the instrument was done by administering copies of it to three lecturers (two from the Department of Electrical Technology Education and one lecturers from the Department of Technology Education), Modibbo Adama University of Technology Yola. The lecturers were requested to examined the language and clarity of the questionnaire items on the subject matter. The observations and suggestions of these lecturers were used to strengthen the items in the instrument.

### **3.7 Reliability of the Instrument**

To establish the reliability of the instrument, the questionnaire was trial-tested at Government Vocational Centre Yola, Adamawa State which was not part of the study area. questionnaire was administered to 7 respondents (3 administrators and 4 trainers). The data from this trial testing were analyzed using Cronbach's alpha to obtained the reliability coefficient of 0.72.

### **3.8 Method of Data Collection**

Copies of the instrument were administered to the respondents by the researcher and with the help of three research assistant. It took two weeks to administer and collect the questionnaire.

### **3.9 Method of Data Analysis**

The data for research questions were analyze using percentage, mean and standard deviation. The decision rule on research questions 1 and 2 was that 50-100% was considered Adequate, 40-49%= moderately adequate and 0-39% was considered Not Adequate. For decisions on research question 3 and 4, true limit of numbers was used as shown as follows: Very high utilize/Required 3.50 – 4.00., Highly Utilize/ Moderately required 2.50 - 3.49, Low Utilized/ Moderately Not Required 1.50 – 2.49, Not Utilize/ Not Required 0.00 - 1.49. The null hypotheses were tested at 0.05 level of significance, when the z-calculated value was less than the z- critical value, the null hypothesis was accepted otherwise rejected.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

In this chapter, the results of data analyses for the study and the findings of the study are presented. The findings are also discussed. All the presentations are done in the order of the research questions and hypotheses.

#### **4.1 Results**

The results of the study were presented in tables based on the research questions and hypotheses.

##### **Research Question 1.**

What are the adequacy of equipment in RTV and GSM servicing Trade workshops at the Vocational Training Centres in Gombe State?

**Table1: Percentage Adequacy of Equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State**

S/N	EQUIPMENT	NR	NA	%NA	REMARK
1	Work station(Whaler)	25	5	20	N
2	Multi meter-Digital	25	9	36	N
3	Multi meter-Analogue	25	9	36	N
4	Booster/Meter	25	5	20	N
5	White Light	25	5	20	N
6	Assorted phone panels	25	5	20	N
7	Magnifying glass	25	11	44	MA
8	Computer (Desk or Laptop)	5	7	100	A
9	Tonado(software box)	5	1	20	N
10	Radio training module	5	2	40	MA
11	Television training module	5	1	20	N
12	Probe/Logic pulsar	25	3	12	N
13	Transformer Training Module	5	1	20	N
14	Oscilloscope	5	1	20	N
15	Pattern generator	5	1	20	N
16	Frequency converter	5	1	20	N
17	Variable power supply	5	2	40	MA
18	Picture tube Tester	5	1	20	N
19	Isolation Transformers	25	3	12	N
20	Vector scope	5	1	20	N
21	Signal strength Meter	5	1	20	N
22	Signal generator	5	1	20	N
23	Black and White TV	5	1	20	N
24	Coloured TV	5	1	20	N
25	TV Training Module	5	1	20	N
26	Radio sets	5	1	20	N
27	Video cassette recorder	5	1	20	N
28	Video CD Machine	5	1	20	N

Key: NR-Number Recommended. NA- Number Available, %NA- Percentage of Number Adequate, A—Adequate, MA- Moderately Adequate and N – Not Adequate

The results of data analysis presented in Table 1 show the percentage adequacy for 24 out of 28 items fall between (0-39%) (from 1-6,8-9,11-16,18-28). All the 24 items fall between (0-39%). This indicates that the equipment in RTV and GSM servicing trade workshops at the Vocational Training Centres in Gombe state is not adequate. 3 items out of 28 items fall between (40-49%) items (from 7,10,17). All the 3 items fall between (40-49%). This indicates that the equipment in RTV and GSM servicing trade workshops at the Vocational Training Centres in Gombe state is moderately adequate. But only the percentage of 1 item, No. 8 (computers, - desk or Laptop) was 50% or above (100%) have fall above 50%. This indicate that only 1 item is adequate.

### Research Question 2.

What are adequacy of tools in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State?

**Table 2: Percentage Adequacy of tools in RTV and GSM servicing Trade workshops at the Vocational Training Centres in Gombe State**

S/NO	TOOLS	NR	NA	%NA	REMARK
29	Set of flat Screwdrivers (large, medium and small)	5sets	3	60	A
30	Asterics	5 sets	3	60	A
31	Set of Allen key	5 sets	4	80	A
32	Set of star screwdrivers	5 sets	5	100	A
33	Set of spanners.	5 sets	3	60	A
34	Soldering iron	25 pieces	13	52	A
35	Soldering iron stand	25 pieces	10	40	MA
36	Lead sucker	25 pieces	9	36	N
37	Long nose pliers	25 pieces	10	40	MA
38	Pair of pliers	25 pieces	12	48	MA
39	Side cutters	25 pieces	11	44	MA

Key: NR-Number Recommended. NA- Number Adequate, %NA- Percentage of Number Adequate, A—Adequate, MA- Moderately Adequate and N – Not Adequate  
 $\%NA = \text{Percentage of Number Adequate} = (NA/NR \times 100)$

The results of data analysis presented in Table 2 shows the percentage availability for 6 items (from 29 to 34) out of the 11 items, all of the 6 items were 50% or above. This indicates that Tools (Set of Screwdrivers – flats (large, medium and small), Asterics

Set of screwdriver Allen key, set of screwdriver –Star, Set of spanners – flat and box. Soldering iron) in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State are adequate, 4 items (from 35,37-39) out of 11 items, all of the 4 items fall between (40-49%). This indicate that 4 items (Soldering iron stand, Lead sucker Long nose pliers, Pair of pliers and Side cutters) are moderately adequate but 1 items (36) out of 11 have fall between (0-39%). This indicate that 1 items (, Lead sucker) is not adequate.

### Research Question 3:

What are the technical skills required by trainers of RTV and GSM Servicing trade in Vocational Training Centres in Gombe State?

**Table 3. Mean and Standard Deviation of Responses of Administrators and Trainers on the Technical Skills Required by Trainers of RTV and GSM Servicing Trade in Vocational Training Centres in Gombe State.?**

S/N	TECHNICAL SKILLS:	ADM (N <sub>A</sub> =13)		TRA (N <sub>T</sub> =42)		$\bar{X}_G$	REMARKS
		$\bar{X}_A$	SD <sub>A</sub>	$\bar{X}_T$	SD <sub>T</sub>		
40	Read multi-meter for fault diagnosis.	2.69	0.61	2.55	0.48	2.64	MR
41	Read oscilloscope in fault diagnosis	2.69	0.59	2.40	0.37	2.53	MR
42	Use signal generator	2.54	0.44	2.40	0.49	2.49	MNR
43	Use soldering iron	2.31	0.42	2.76	0.66	2.70	MR
44	Use hand tools ( e.g screwdriver, plier, Allen key e.t.c)	2.62	0.45	2.31	0.32	2.44	MNR
45	Construct new circuit	2.38	0.32	2.60	0.43	2.59	MR
46	Clear fault at power, vertical deflection, and horizontal deflection sections of TV recievers	2.62	0.52	2.52	0.46	2.60	MR
47	Repair radio receiver	2.54	0.67	2.48	0.33	2.55	MR
48	Solve hardware problem in GSM	2.62	0.67	2.69	0.53	2.73	MR
49	Solve software problem in GSM	2.38	0.84	2.81	0.69	2.77	MR
50	Repair Video machine	2.23	0.61	2.50	0.34	2.49	MNR
51	Repair CD/DVD appliances/device	2.62	0.52	2.48	0.38	2.57	MR
52	Install satellite dish	2.46	0.33	2.57	0.39	2.60	MR
53	Interprete schematic diagrams	2.31	0.40	2.45	0.31	2.47	MNR
		2.50	0.53	2.54	0.44	2.58	MR

**Key:**  $\bar{X}_A$  =Mean of Administrator,  $SD_A$ = Standard Deviation of Administrator,  $\bar{X}_T$  = Mean of Trainers,  $SD_T$  = Standard Deviation of Trainers,  $\bar{X}_G$ = Grand Mean, ADM= Administrators, TRA =Trainers. MR = Moderately Required and MNR = Moderately Not Required.

The result in Table 3. Shows that each of 10 items (71.43%) (40, 41, 43, 45, 46, 47, 48, 49, 51, 52 and 53 ) out of the 14 items listed have fall within the decision rule of moderately required and items 4 (28.57%) 42, 44, 50 and 53 fall within the decision rule of moderately not required. The overall mean of the 14 items which was 2.58 also indicate moderately required. This grand mean indicates that the technical skills in RTV and GSM Servicing Trade in Vocational Training Centres in Gombe state are moderately required but each of 4 (28.57%) items (42,44, 50 and 53) out of 14 items, are moderately not required.

**Table 4. Mean and Standard Deviation of Responses of Administrators and Trainers on the level of Utilization of Training Tools and Equipment in RTV and GSM servicing Trade in Vocational Training Centres in Gombe State?**

S/N	ITEMS Training tools and Equipment	ADM ( $N_A=13$ )		TRA ( $N_T=42$ )		$\bar{X}_G$	REMARKS
		$\bar{X}_A$	$SD_A$	$\bar{X}_T$	$SD_T$		
54	Work station ( Whaler)	2.08	0.56	2.79	0.69	2.67	HU
55	Multi meter- Digital	1.85	0.45	3.24	0.82	2.95	HU
56	Multi meter-Analogue	1.85	0.62	2.55	0.43	2.43	LU
57	Booster/Meter	2.15	0.48	2.60	0.36	2.54	HU
58	White Light	2.00	0.48	2.45	0.45	2.39	LU
59	Assorted phone panels	2.23	0.46	2.64	0.48	2.59	HU
60	Magnifying glass	2.00	0.42	3.00	0.79	2.81	HU
61	Computer (Desk or Laptop)	2.00	0.70	2.95	0.79	2.78	HU
62	Tonado (software box)	1.92	0.20	2.40	0.34	2.33	LU
63	Radio training module	2.08	0.38	2.83	0.55	2.70	HU
64	Television training module	1.92	0.20	2.86	0.56	2.68	HU
65	Probe/Logic pulsar	1.92	0.16	2.67	0.40	2.53	HU
66	Transformer training module	1.92	0.20	2.71	0.43	2.57	HU
67	Oscilloscope	1.92	0.39	2.29	0.21	2.24	LU
68	Pattern generator	2.15	0.33	2.81	0.49	2.70	HU
69	Frequency converter	1.85	0.31	2.38	0.27	2.29	LU
70	Variable power supply	2.08	0.56	2.88	0.55	2.74	HU
71	Picture tube Tester	2.15	0.29	2.69	0.49	2.61	HU
72	Isolation Transformers	1.85	0.35	2.64	0.45	2.49	LU
73	Vector scope	1.77	0.38	2.38	0.31	2.28	LU
74	Signal strength Meter	1.85	0.38	2.50	0.51	2.39	LU
75	Signal generato	1.62	0.39	2.52	0.48	2.35	LU
76	Black and white TV	1.92	0.39	3.02	0.90	2.81	HU
		1.96	0.40	2.69	0.51	2.56	HU

**Key:**  $\bar{X}_A$  =Mean of Administrator,  $SD_A$ = Standard Deviation of Administrator,  $\bar{X}_T$  = Mean of Trainers,  $SD_T$  = Standard Deviation of Trainers,  $\bar{X}_G$ = Grand Mean, ADM= Administrators, TRA =Trainers. HU = Highly Utilized and LU= Low Utilized

The results in Table 4 shows that 15 items (54, 55, 57, 59, 60, 61, 63, 64, 65, 66, 68, 70, 71,75 and 76) out of the 23 items (65.21%) all fall within the decision rule of highly utilized and items 8 (34.78%) (56,58,62,67,69,72,73 and 74) fall within the decision rule of Low utilized. The overall mean of the 23 items which was 2.56 also indicate highly utilized. This grand mean indicates that the training tools and equipment in RTV and GSM servicing Trade in Vocational Training Centres in Gombe State are Highly utilized but 8 items (56,58,62,67,69,72,73 and 74) this indicates that some of these training tools and equipment in RTV and GSM servicing Trade are low utilized.

### **Hypothesis 1**

There is no significant difference between the mean responses of Administrators and Trainers on the level of skills required by trainers of RTV and GSM servicing trade at Vocational Training Centres in Gombe State.

**Table 5: Summary of z-test Analysis of Difference Between the Reponses of Administrators and Trainers on the Level of Skills Required by Trainers of RTV and GSM servicing trade at Vocational Training Centres in Gombe State**

Respondent Category	NO.	Mean	SD	Df	z-cal	z-cri	Remark
Administrators	13	2.50	0.02	53	-0.67	1.96	Accepted
Trainers	42	2.53	0.02				

From Table 3, the calculated z-test value of -0.67 is less than the critical value of (1.96) at 0.05 level of significance. The null hypothesis was accepted because it is within the normal distribution curve. This therefore means that the mean ratings of administrators and trainers with regard to the technical skills required by trainers of RTV and GSM servicing trade at Vocational Training Centres in Gombe State do not differ significantly.

### **Hypothesis 2:**

There is no significance difference between the mean responses of Administrators and Trainers on utilization of training tools and equipment in RTV and GSM servicing Trade at Vocational Training Centres in Gombe State.

**Table 6: Summary of z-test Analysis of Difference between the Responses of Administrators and Trainers on the Utilization of Training Tools and Equipment in RTV and GSM servicing Trade at Vocational Training Centres in Gombe State**

Respondent Category	NO.	Mean	SD	Df	z-cal	z-crit	Remark
Administrators	13	1.96	0.02	53	-12.42	1.96	Rejected
Trainers	42	2.69	0.06				

From Table 6, the calculated z-test value of -12.42 is less than the critical value of (1.96) at 0.05 level of significance. The null hypothesis was rejected because it is outside the normal distribution curve. This therefore means that the mean ratings of administrators and trainers with regard to the utilization of training tools and equipment in RTV and GSM servicing Trade at Vocational Training Centres in Gombe State do differ significantly.

#### 4.2 Findings of the Study

Based on the results of data analysis presented the following findings were made:

1. Equipment in RTV and GSM servicing trade workshops at the Vocational Training Centres in Gombe State such as( workstation, multimeter-digital, multimeter-analogue, Booster meter, white light, assorted phone panels, tonado (soft wire box), television training module, probe/logic pulsar, oscilloscope, pattern generator, picture tube tester, isolation transformers, vector scope, signal strength meter, black and white television, coloured tv, tv training module, radio set, video cassette recorder and video cd machine are not adequate But equipment such as magnifying glass, radio training module and variable power supply are moderately adequate. Only computers (desk or laptop) was adequate.
2. Tools such as (Set of flat Screwdrivers, (large, medium and small), Asterics, Set of Allen key, set of star screwdrivers, set of spanners and Soldering iron) in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State

are adequate. But tools such as soldering iron stand, long nose pliers, and side cutters are moderately adequate. Only lead sucker is not adequate.

3. Majority of the technical skills listed( 10 out of 14, e.g. Read multi-meter for fault diagnosis, Read oscilloscope in fault diagnosis, Use soldering iron, Construct new circuit, Clear fault at power, vertical deflection, and horizontal deflection sections of TV receivers, Repair radio receiver, Solve hardware problem in GSM, Solve software problem in GSM, Repair CD/DVD appliances/device, Install satellite dish, are moderately required by the trainers) while only 4: use of signal generator, hand tools, video machine repairs and interpreting schematic diagram are moderately not required by the trainers.
4. Majority of the adequate training tools and equipment in RTV and GSM servicing trade workshop at the vocational training centres in Gombe State are highly utilized by the trainers. The equipment and tools low utilized are: multi-meter analogue, white light, tonado (software box), oscilloscope, frequency converter, isolator transformers, vector scope, signal strength meter and signal generator.
5. There was no significant difference between the mean ratings of administrators and trainers on the level of technical skills required by trainers of RTV and GSM servicing trade at Vocational Training Centres in Gombe State.
6. Significant difference was found to exist between the mean ratings of Administrators and trainers on the utilization of training tools and equipment in RTV and GSM servicing Trade at Vocational Training Centres in Gombe State.

### **4.3 Discussion**

The findings of research question 1 revealed that Equipment in RTV and GSM servicing trade workshops at the Vocational Training Centres in Gombe State such as( workstation, multimeter-digital, multimeter-analogue, Booster meter, white light, assorted phone panels, tonado(soft wire box), television training module, probe/logic pulsar, oscilloscope, pattern generator, picture tube tester, isolation transformers, vector scope, signal strength meter, black and white television, coloured tv, tv training module, radio set, video cassette recorder and video cd machine are not adequate But equipment such as magnifying glass, radio training module and variable power supply are moderately adequate. Only computers (desk or laptop) was adequate. as can be seen in the table 1. In agreement with. Adebisi and Oni (2012) revealed that there was inadequate availability of training equipment for the NDE vocational training programme.in disagreement with this study Research and curriculum Development (R&CD) and Industrial Training Fund (ITF)

(2014) revealed that there was high level of availability of equipment in the vocational training programme. In agreement with this finding Ogbuanya, Akintonde and Bakare (2017) found that there was in availability and inadequate supply of training equipment/facilities in both electrical and electronics section of the vocational training center. The findings have revealed that out of the twenty-eight items listed, only two were available and adequately supplied while twenty-six items listed were inadequate in Osun state. This study agreed with Yaduma and Moses (2005) who concluded that vocational training centers and technical college in Bauchi state lack training facilities. It also agreed with submission of Godwin, Omofonmwan and Solomon (2013) that tools and equipment's were moderately available at vocational and technical college.

The findings of research question 2 revealed that, tools such as (Set of flat Screwdrivers, (large, medium and small), Asterics, Set of Allen key, set of star screwdrivers, set of spanners and Soldering iron) in RTV and GSM servicing Trade workshop at the Vocational Training Centres in Gombe State are adequate. But tools such as soldering iron stand, long nose pliers, and side cutters are moderately adequate. Only lead sucker is not adequate as can be seen in the table 2. In disagreement with this findings Umar and Maaji (2010) found that there was inadequacy of facilities in vocational training centre workshop.in agreement with this study Research and curriculum Development (R&CD) and Industrial Training Fund (ITF) (2014) revealed that there was high level of availability of equipment and facilities in the vocational training programme. The finding is also in agreement with the opinion of Odukwe (2001) who said that the standard of education is falling not only in terms of curriculum but also in term of tools, equipment, machines and other facilities that are not available. Umar and Abdullah (2010), who stated that the unavailability of tools, equipment, machines or facilities makes teaching ineffective, time consuming and boring. This study disagreement with the submission of Medugu, Abdulkarim and Bashir (2017) that training facilities are not available as required by the NDE in Adamawa state, the available ones are not adequate, they are in short of supply.

The findings relating to research question 3 revealed that majority of the technical skills ability are moderately required by the trainers but only few of these technical skills are moderately not required by the trainers, which includes: use of signal generator, hand tools, video machine repairs and interpreting schematic diagram, as can be seen in the table 3. In agreement with this study Ogbuanya, Akintonde and Bakare (2017) found that teachers were not adequate in terms of technical skills in vocational training centres and

technical colleges in osun state Nigeria in agreement with this study Aneke (2015) revealed that teachers use practical skills to a great extent.

The findings relating to research question 4 revealed that majority of training tools and equipment in RTV and GSM servicing trade workshop at the vocational training centres in Gombe State are highly utilized by the trainers, the training equipment and tools which include: multi-meter analogue, white light, tonado (software box), oscilloscope, frequency converter, isolator transformers, vector scope, signal strength meter and signal generator are low utilized by the trainers. In agreement with this study. In agreement with this study Okwori, Adamu and Odo (2013) revealed that woodwork graduates of vocational training centres and technical colleges in Niger state used all the hand tools. This finding agreed with the submission of Ajayi (1998) who stated that the Nigeria education system has failed to inculcate the spirit of self-reliance in the recipients because there was no equipment in institution and where they existed, they were not being utilized. The finding is also in line with the opinion of Anaele (2001) that instructional facilities in Nigeria institutions are under-utilized. The under-utilization. This is also in agreement with Ugwoke (2011) who stated that tools, equipment and other facilities in Nigeria institutions were not extensively utilized.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

The chapter presents the summary of the study, conclusions and recommendations.

#### 5.1 Summary of the study

The study was a survey research; consequently, descriptive survey design was employed. Four (4) research questions and two (2) hypotheses guided the study. A structured questionnaire was designed by the researcher for the purpose of collecting data to assist in the findings of the study. The questionnaire was divided into four sections based on the four research questions. In other words, each section of the questionnaire treated items related to each of the four research questions. The study covered Appraisal of Vocational Training Programme in Radio, TV, and GSM servicing in VTC in Gombe State. The population for the study consisted of 55 subjects, made up of 13 Administrators and 42 Trainers. There was no sampling because the population was manageable, the questionnaire was administered to the 55 subjects. The researcher was assisted by some research assistants who personally administered the questionnaire to the respondents. The exercise took two weeks. Earlier, the questionnaire was trial tested on one Government Secondary schools in Adamawa State to determine the reliability of the instrument. The data from this trial testing were analyzed using the Cronbach's alpha. The Cronbach's alpha  $\alpha$  was found to be 0.72. A total of 55 copies of the structures questionnaire were fully filled and returned, made up of 13 Administrators and 42 trainers. The data collected were presented in tables. Percentages, Mean and Standard Deviation answered the research questions. The hypotheses were tested with z-test.

#### 5.2 Conclusion

Based on the findings of this study the vocational training centres in Gombe state have inadequate availability of equipment and the trainers require some technical skills training in other to achieve the set objectives of the programme.

#### 5.3 Recommendations

Based on the findings of this study, the following recommendations are made:

1. The Ministry of education in Gombe State should provide the schools with adequate training tools and equipment so that the school will achieved it goals
2. Government should provide more training to trainers on the technical skills they require.
3. Private organizations should be encouraging by Government to contribute/ intervene by donating training tools and equipment to the school workshops

#### **5.4 Suggestions for Further Studies**

The following suggestions are made for further research:

1. Appraisal of Vocational Training Programme in RTV and Global System of Mobile Communication (GSM) Servicing in Vocational Training Centre in Adamawa state.
2. Appraisal of Technical education programme in Colleges of Education in Gombe state
3. Appraisal of Technical Colleges in Radio Television Electronics works in Government Technical Colleges in Gombe state.

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## APPENDICES

### Appendix A: Request for Assistance to Validate Questionnaire

Department of Electrical Technology Education  
Modibbo Adama University of Technology  
Yola,  
P.M.B 2076, Adamawa state  
Date 30<sup>th</sup> July 2018.

Dear Sir,

#### **REQUEST FOR ASSISTANCE TO VALIDATE QUESTIONNAIRE**

I am a postgraduate student of the above department carrying out a research on a topic titled: **“AN APPRAISAL OF VOCATIONAL TRAINING PROGRAMME IN RADIO, TELEVISION AND GLOBAL SYSTEM OF MOBILE COMMUNICATION (GSM) SERVICING IN VOCATIONAL TRAINING CENTRES IN GOMBE STATE”**. Find attached a questionnaire designed to collect data needed for analysis.

As an expert, you are please requested to:

- a. Assess the appropriateness of the questionnaire for the collection of the needed information from trainers and administrators and examine the language and clarity of the questionnaire items.
- b. Assess the extent to which questionnaire items covers the subject matter and make suggestions.
- c. Determine the appraisal of Vocational Training Programme in Radio, Television and Global System of Mobile Communication (GSM) Servicing in Vocational Training Centres in Gombe State”.

Please you are also requested to point out mistakes in the grammar and framing of the language. Any other suggestion that will enable the subjects respond intelligently also will be appreciated.

Thanks in anticipation of your assistance.

Yours faithfully

Philip Sunday  
M.Tech/TED/15/0512

**Appendix B: Introductory Letter to the Respondent**

Department of Electrical Technology Education  
Modibbo Adama University of Technology Yola,  
Adamawa State.  
Date: 30<sup>th</sup> July 2018.

Dear Respondent,

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING  
PROGRAMME IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING  
CENTRE**

I am a postgraduate student of Modibbo Adama University of Technology, Yola, conducting a research study titled, Appraisal of Vocational Training Programme in RTV and Global System of Mobile Communication (GSM) Servicing in Vocational Training Centre in Gombe state. You have been identified as a resource person for supplying information needed for conducting the study. Please respond to the attached questionnaire as honest as possible. Your responses will be treated as confidential and will be used for the purpose of this study only.

Yours faithfully,

Sunday Philip

M.Tech/TED/15/0512

**Appendix C: Copy of Completed Questionnaire**

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A: Bio Data of the respondent in Gombe State.**

Please indicate by ticking (√) the response most applicable to you.

Administrator

Trainer

Name of the School  G.B.T.C Bajoga

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	18
2	Multi meter-Digital	25	16
3	Multi meter-Analogue	25	22
4	Booster/Meter	25	20
5	White Light	25	19
6	Assorted phone panels	25	19
7	Magnifying glass	25	16
8	Computer (Desk or Laptop)	5	4
9	Tonado(software box)	5	2
10	Radio training module	5	3
11	Television training module	5	2
12	Probe/Logic pulsar	25	21
13	Transformer Training Module	5	2
14	Oscilloscope	5	2
15	Pattern generator	5	1

16	Frequency converter	5	2
17	Variable power supply	5	1
18	Picture tube Tester	5	2
19	Isolation Transformers	25	21
20	Vector scope	5	2
21	Signal strength Meter	5	1
22	Signal generator	5	1
23	Black and White TV	5	2
24	Coloured TV	5	0
25	TV Training Module	5	1
26	Radio sets	5	3
27	Video cassette recorder	5	1
28	Video CD Machine	5	0

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	1
30	Asterics	<b>5 sets</b>	3
31	Set of screwdriver Allen key	<b>5 sets</b>	4
32	Set of screwdriver –Star	<b>5 sets</b>	1
33	Set of spanners – flat and box.	<b>5 sets</b>	0
34	Soldering iron	<b>25 pieces</b>	18
35	Soldering iron stand	<b>25 pieces</b>	22
36	Lead sucker	<b>25 pieces</b>	16
37	Long nose pliers	<b>25 pieces</b>	17
38	Pair of pliers	<b>25 pieces</b>	19
39	Side cutters	<b>25 pieces</b>	21

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.B.T.C Kwami

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	3
2	Multi meter-Digital	25	3
3	Multi meter-Analogue	25	2
4	Booster/Meter	25	1
5	White Light	25	1
6	Assorted phone panels	25	2
7	Magnifying glass	25	2
8	Computer (Desk or Laptop)	5	1
9	Tonado(software box)	5	0
10	Radio training module	5	0
11	Television training module	5	0
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	3
14	Oscilloscope	5	1
15	Pattern generator	5	1
16	Frequency converter	5	1
17	Variable power supply	5	3
18	Picture tube Tester	5	1
19	Isolation Transformers	25	1
20	Vector scope	5	1

21	Signal strength Meter	5	1
22	Signal generator	5	2
23	Black and White TV	5	1
24	Coloured TV	5	1
25	TV Training Module	5	0
26	Radio sets	5	1
27	Video cassette recorder	5	1
28	Video CD Machine	5	0

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	1
30	Asterics	<b>5 sets</b>	3
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	2
33	Set of spanners – flat and box.	<b>5 sets</b>	3
34	Soldering iron	<b>25 pieces</b>	4
35	Soldering iron stand	<b>25 pieces</b>	4
36	Lead sucker	<b>25 pieces</b>	3
37	Long nose pliers	<b>25 pieces</b>	2
38	Pair of pliers	<b>25 pieces</b>	3
39	Side cutters	<b>25 pieces</b>	3

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A: Bio Data of the respondent in Gombe State.**

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.B.T.C Hinna

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	10
2	Multi meter-Digital	25	16
3	Multi meter-Analogue	25	18
4	Booster/Meter	25	10
5	White Light	25	5
6	Assorted phone panels	25	15
7	Magnifying glass	25	5
8	Computer (Desk or Laptop)	5	1
9	Tonado(software box)	5	2
10	Radio training module	5	1
11	Television training module	5	0
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	2
14	Oscilloscope	5	1
15	Pattern generator	5	2

16	Frequency converter	5	1
17	Variable power supply	5	3
18	Picture tube Tester	5	2
19	Isolation Transformers	25	5
20	Vector scope	5	1
21	Signal strength Meter	5	1
22	Signal generator	5	2
23	Black and White TV	5	1
24	Coloured TV	5	2
25	TV Training Module	5	1
26	Radio sets	5	1
27	Video cassette recorder	5	1
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	2
30	Asterics	<b>5 sets</b>	3
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	2
33	Set of spanners – flat and box.	<b>5 sets</b>	1
34	Soldering iron	<b>25 pieces</b>	15

35	Soldering iron stand	<b>25 pieces</b>	20
36	Lead sucker	<b>25 pieces</b>	18
37	Long nose pliers	<b>25 pieces</b>	10
38	Pair of pliers	<b>25 pieces</b>	21
39	Side cutters	<b>25 pieces</b>	20

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator

Trainer

Name of the School G.B.T.C Lappa

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	8
2	Multi meter-Digital	25	10
3	Multi meter-Analogue	25	12
4	Booster/Meter	25	3
5	White Light	25	18
6	Assorted phone panels	25	3
7	Magnifying glass	25	8
8	Computer (Desk or Laptop)	5	3
9	Tonado(software box)	5	2
10	Radio training module	5	3
11	Television training module	5	3
12	Probe/Logic pulsar	25	4
13	Transformer Training Module	5	2
14	Oscilloscope	5	2
15	Pattern generator	5	2
16	Frequency converter	5	3
17	Variable power supply	5	2

18	Picture tube Tester	5	2
19	Isolation Transformers	25	2
20	Vector scope	5	2
21	Signal strength Meter	5	3
22	Signal generator	5	2
23	Black and White TV	5	2
24	Coloured TV	5	2
25	TV Training Module	5	3
26	Radio sets	5	2
27	Video cassette recorder	5	3
28	Video CD Machine	5	2

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	3
30	Asterics	<b>5 sets</b>	1
31	Set of screwdriver Allen key	<b>5 sets</b>	2
32	Set of screwdriver –Star	<b>5 sets</b>	3
33	Set of spanners – flat and box.	<b>5 sets</b>	2
34	Soldering iron	<b>25 pieces</b>	12
35	Soldering iron stand	<b>25 pieces</b>	12
36	Lead sucker	<b>25 pieces</b>	12
37	Long nose pliers	<b>25 pieces</b>	8
38	Pair of pliers	<b>25 pieces</b>	10
39	Side cutters	<b>25 pieces</b>	9

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator

Trainer

Name of the School G. B. T. C Deba

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	0
2	Multi meter-Digital	25	1
3	Multi meter-Analogue	25	3
4	Booster/Meter	25	0
5	White Light	25	0
6	Assorted phone panels	25	0
7	Magnifying glass	25	0
8	Computer (Desk or Laptop)	5	8
9	Tonado(software box)	5	0
10	Radio training module	5	0
11	Television training module	5	0
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	0
14	Oscilloscope	5	0
15	Pattern generator	5	0
16	Frequency converter	5	0
17	Variable power supply	5	0

18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	0
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	0
24	Coloured TV	5	0
25	TV Training Module	5	0
26	Radio sets	5	0
27	Video cassette recorder	5	0
28	Video CD Machine	5	0

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key: NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	2
30	Asterics	<b>5 sets</b>	0
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	2
33	Set of spanners – flat and box.	<b>5 sets</b>	1
34	Soldering iron	<b>25 pieces</b>	5
35	Soldering iron stand	<b>25 pieces</b>	0
36	Lead sucker	<b>25 pieces</b>	0
37	Long nose pliers	<b>25 pieces</b>	1
38	Pair of pliers	<b>25 pieces</b>	5
39	Side cutters	<b>25 pieces</b>	2

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G. B. T.C Tumu

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	6
2	Multi meter-Digital	25	2
3	Multi meter-Analogue	25	2
4	Booster/Meter	25	1
5	White Light	25	3
6	Assorted phone panels	25	4
7	Magnifying glass	25	2
8	Computer (Desk or Laptop)	5	2
9	Tonado(software box)	5	4
10	Radio training module	5	3
11	Television training module	5	4
12	Probe/Logic pulsar	25	5
13	Transformer Training Module	5	3
14	Oscilloscope	5	4
15	Pattern generator	5	3
16	Frequency converter	5	3

17	Variable power supply	5	4
18	Picture tube Tester	5	4
19	Isolation Transformers	25	3
20	Vector scope	5	4
21	Signal strength Meter	5	5
22	Signal generator	5	1
23	Black and White TV	5	1
24	Coloured TV	5	2
25	TV Training Module	5	2
26	Radio sets	5	1
27	Video cassette recorder	5	2
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	2
30	Asterics	<b>5 sets</b>	3
31	Set of screwdriver Allen key	<b>5 sets</b>	4
32	Set of screwdriver –Star	<b>5 sets</b>	1
33	Set of spanners – flat and box.	<b>5 sets</b>	5
34	Soldering iron	<b>25 pieces</b>	3
35	Soldering iron stand	<b>25 pieces</b>	2
36	Lead sucker	<b>25 pieces</b>	2
37	Long nose pliers	<b>25 pieces</b>	1
38	Pair of pliers	<b>25 pieces</b>	2
39	Side cutters	<b>25 pieces</b>	5

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A: Bio Data of the respondent in Gombe State.**

Please indicate by ticking (√) the response most applicable to you.

Administrator  (√)

Trainer  ( )

Name of the School

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	8
2	Multi meter-Digital	25	7
3	Multi meter-Analogue	25	10
4	Booster/Meter	25	3
5	White Light	25	8
6	Assorted phone panels	25	9
7	Magnifying glass	25	18
8	Computer (Desk or Laptop)	5	2
9	Tonado(software box)	5	0
10	Radio training module	5	1
11	Television training module	5	2
12	Probe/Logic pulsar	25	3
13	Transformer Training Module	5	2
14	Oscilloscope	5	0
15	Pattern generator	5	0
16	Frequency converter	5	0

17	Variable power supply	5	1
18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	0
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	1
24	Coloured TV	5	1
25	TV Training Module	5	1
26	Radio sets	5	1
27	Video cassette recorder	5	0
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	13
30	Asterics	<b>5 sets</b>	10
31	Set of screwdriver Allen key	<b>5 sets</b>	14
32	Set of screwdriver –Star	<b>5 sets</b>	30
33	Set of spanners – flat and box.	<b>5 sets</b>	3
34	Soldering iron	<b>25 pieces</b>	23
35	Soldering iron stand	<b>25 pieces</b>	20
36	Lead sucker	<b>25 pieces</b>	7
37	Long nose pliers	<b>25 pieces</b>	20
38	Pair of pliers	<b>25 pieces</b>	19
39	Side cutters	<b>25 pieces</b>	20

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.V.T.C Tamglang

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	0
2	Multi meter-Digital	25	7
3	Multi meter-Analogue	25	4
4	Booster/Meter	25	0
5	White Light	25	0
6	Assorted phone panels	25	0
7	Magnifying glass	25	10
8	Computer (Desk or Laptop)	5	6
9	Tonado(software box)	5	0
10	Radio training module	5	1
11	Television training module	5	0
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	2
14	Oscilloscope	5	0
15	Pattern generator	5	1
16	Frequency converter	5	0
17	Variable power supply	5	0

18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	0
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	2
24	Coloured TV	5	1
25	TV Training Module	5	0
26	Radio sets	5	1
27	Video cassette recorder	5	1
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	1
30	Asterics	<b>5 sets</b>	2
31	Set of screwdriver Allen key	<b>5 sets</b>	1
32	Set of screwdriver –Star	<b>5 sets</b>	2
33	Set of spanners – flat and box.	<b>5 sets</b>	3
34	Soldering iron	<b>25 pieces</b>	5
35	Soldering iron stand	<b>25 pieces</b>	10
36	Lead sucker	<b>25 pieces</b>	0
37	Long nose pliers	<b>25 pieces</b>	15
38	Pair of pliers	<b>25 pieces</b>	13
39	Side cutters	<b>25 pieces</b>	11

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.V.T.C Kamo

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	0
2	Multi meter-Digital	25	5
3	Multi meter-Analogue	25	4
4	Booster/Meter	25	10
5	White Light	25	0
6	Assorted phone panels	25	0
7	Magnifying glass	25	26
8	Computer (Desk or Laptop)	5	15
9	Tonado(software box)	5	0
10	Radio training module	5	2
11	Television training module	5	1
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	2
14	Oscilloscope	5	0

15	Pattern generator	5	1
16	Frequency converter	5	0
17	Variable power supply	5	0
18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	0
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	1
24	Coloured TV	5	1
25	TV Training Module	5	1
26	Radio sets	5	1
27	Video cassette recorder	5	1
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	2
30	Asterics	<b>5 sets</b>	1
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	1
33	Set of spanners – flat and box.	<b>5 sets</b>	4
34	Soldering iron	<b>25 pieces</b>	12
35	Soldering iron stand	<b>25 pieces</b>	11
36	Lead sucker	<b>25 pieces</b>	14
37	Long nose pliers	<b>25 pieces</b>	13
38	Pair of pliers	<b>25 pieces</b>	11
39	Side cutters	<b>25 pieces</b>	10

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.V.T.C Dukku

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	2
2	Multi meter-Digital	25	20
3	Multi meter-Analogue	25	20
4	Booster/Meter	25	5
5	White Light	25	1
6	Assorted phone panels	25	3
7	Magnifying glass	25	30
8	Computer (Desk or Laptop)	5	15
9	Tonado(software box)	5	1
10	Radio training module	5	1
11	Television training module	5	1
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	1
14	Oscilloscope	5	1
15	Pattern generator	5	0
16	Frequency converter	5	1
17	Variable power supply	5	1

18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	2
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	1
24	Coloured TV	5	1
25	TV Training Module	5	1
26	Radio sets	5	1
27	Video cassette recorder	5	0
28	Video CD Machine	5	1

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	2
30	Asterics	<b>5 sets</b>	1
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	4
33	Set of spanners – flat and box.	<b>5 sets</b>	4
34	Soldering iron	<b>25 pieces</b>	18
35	Soldering iron stand	<b>25 pieces</b>	15
36	Lead sucker	<b>25 pieces</b>	10
37	Long nose pliers	<b>25 pieces</b>	20
38	Pair of pliers	<b>25 pieces</b>	23
39	Side cutters	<b>25 pieces</b>	17

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.V.T.C Dadiya Bambam

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	8
2	Multi meter-Digital	25	2
3	Multi meter-Analogue	25	2
4	Booster/Meter	25	2
5	White Light	25	3
6	Assorted phone panels	25	2
7	Magnifying glass	25	2
8	Computer (Desk or Laptop)	5	5
9	Tonado(software box)	5	5
10	Radio training module	5	4
11	Television training module	5	2
12	Probe/Logic pulsar	25	4
13	Transformer Training Module	5	2
14	Oscilloscope	5	2
15	Pattern generator	5	2
16	Frequency converter	5	2
17	Variable power supply	5	4

18	Picture tube Tester	5	1
19	Isolation Transformers	25	3
20	Vector scope	5	3
21	Signal strength Meter	5	2
22	Signal generator	5	2
23	Black and White TV	5	1
24	Coloured TV	5	3
25	TV Training Module	5	2
26	Radio sets	5	2
27	Video cassette recorder	5	2
28	Video CD Machine	5	2

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	3
30	Asterics	<b>5 sets</b>	4
31	Set of screwdriver Allen key	<b>5 sets</b>	3
32	Set of screwdriver –Star	<b>5 sets</b>	6
33	Set of spanners – flat and box.	<b>5 sets</b>	7
34	Soldering iron	<b>25 pieces</b>	2
35	Soldering iron stand	<b>25 pieces</b>	2
36	Lead sucker	<b>25 pieces</b>	5
37	Long nose pliers	<b>25 pieces</b>	3
38	Pair of pliers	<b>25 pieces</b>	5
39	Side cutters	<b>25 pieces</b>	2

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator

Trainer

Name of the School G.V.T.C Tula

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	0
2	Multi meter-Digital	25	5
3	Multi meter-Analogue	25	4
4	Booster/Meter	25	0
5	White Light	25	0
6	Assorted phone panels	25	0
7	Magnifying glass	25	0
8	Computer (Desk or Laptop)	5	15
9	Tonado(software box)	5	0
10	Radio training module	5	0
11	Television training module	5	0
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	0
14	Oscilloscope	5	0
15	Pattern generator	5	0
16	Frequency converter	5	0
17	Variable power supply	5	0

18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	0
21	Signal strength Meter	5	0
22	Signal generator	5	0
23	Black and White TV	5	0
24	Coloured TV	5	0
25	TV Training Module	5	0
26	Radio sets	5	0
27	Video cassette recorder	5	0
28	Video CD Machine	5	0

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	3
30	Asterics	<b>5 sets</b>	0
31	Set of screwdriver Allen key	<b>5 sets</b>	2
32	Set of screwdriver –Star	<b>5 sets</b>	2
33	Set of spanners – flat and box.	<b>5 sets</b>	0
34	Soldering iron	<b>25 pieces</b>	30
35	Soldering iron stand	<b>25 pieces</b>	0
36	Lead sucker	<b>25 pieces</b>	16
37	Long nose pliers	<b>25 pieces</b>	7
38	Pair of pliers	<b>25 pieces</b>	7
39	Side cutters	<b>25 pieces</b>	6

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A:** Bio Data of the respondent in Gombe State.

Please indicate by ticking (√) the response most applicable to you.

Administrator (√)

Trainer ( )

Name of the School G.V.T.C Nafada

**Section A: Adequacy of Equipment in RTV and GSM servicing Trade at the  
Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the equipment in RTV and  
GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/N	ITEMS ON EQUIPMENTS	NR	NA
1	Work station(Whaler)	25	3
2	Multi meter-Digital	25	18
3	Multi meter-Analogue	25	20
4	Booster/Meter	25	4
5	White Light	25	2
6	Assorted phone panels	25	5
7	Magnifying glass	25	25
8	Computer (Desk or Laptop)	5	16
9	Tonado(software box)	5	1
10	Radio training module	5	1
11	Television training module	5	1
12	Probe/Logic pulsar	25	0
13	Transformer Training Module	5	1
14	Oscilloscope	5	1
15	Pattern generator	5	0
16	Frequency converter	5	1
17	Variable power supply	5	1

18	Picture tube Tester	5	0
19	Isolation Transformers	25	0
20	Vector scope	5	3
21	Signal strength Meter	5	1
22	Signal generator	5	0
23	Black and White TV	5	2
24	Coloured TV	5	3
25	TV Training Module	5	1
26	Radio sets	5	1
27	Video cassette recorder	5	3
28	Video CD Machine	5	2

**Section B: Adequacy of tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.**

Please indicate by ticking (✓) in the spaces provided the tools in RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

NR- Recommended Number

NA- Number Available

S/NO	ITEMS ON TOOLS	NR	NA
29	Set of Screwdrivers – flats,(large, medium and small)	<b>5 sets</b>	3
30	Asterics	<b>5 sets</b>	2
31	Set of screwdriver Allen key	<b>5 sets</b>	1
32	Set of screwdriver –Star	<b>5 sets</b>	5
33	Set of spanners – flat and box.	<b>5 sets</b>	6
34	Soldering iron	<b>25 pieces</b>	7
35	Soldering iron stand	<b>25 pieces</b>	16
36	Lead sucker	<b>25 pieces</b>	9
37	Long nose pliers	<b>25 pieces</b>	18
38	Pair of pliers	<b>25 pieces</b>	20
39	Side cutters	<b>25 pieces</b>	15

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A: Bio Data of the respondent in Gombe State.**

Please indicate by ticking (√) the response most applicable to you.

Administrator (13)

Trainer ( )

**Section C: Technical skills required by trainers of RTV and GSM servicing Trade at Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the technical skills required by trainers of RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

Required - (R)

Moderately Required (MR)

Moderately Not Required (MNR)

Not Required - (NR)

S/N	TECHNICAL SKILLS: Ability to;	R	MR	MNR	NR
40	Read multi-meter for faulty diagnosis.	4	5	--	4
41	Read oscilloscope in faulty diagnosis	3	6	1	3
42	Use signal generator	4	3	2	4
43	Use soldering iron	1	5	4	3
44	Use hand tools (screwdriver, plier, Allen key)	1	4	3	5
45	Constructing new circuit (vibrator)	2	5	5	1
46	Clear fault at ( power, vertical deflection, horizontal deflection section)	2	3	6	2
47	Radio receiver repairs	2	6	3	2
48	Solving hardware problem in GSM	1	7	3	2
49	Solving software problem in GSM	2	7	1	3
50	Video machine repairs	-	8	2	3
51	Repairs of CD/DVD appliances/device	-	6	4	3
52	Use satellite dish installation	2	6	3	2
53	Interpreting schematic diagram	2	4	5	2

**Section D:** the level of utilization of training tools and equipment in RTV and GSM servicing Trade well utilize in Vocational Training Centres in Gombe State

Please indicate by ticking in the spaces provided (✓) are the training facilities in RTV and GSM servicing Trade well utilize in Vocational Training Centres in Gombe State

Key:

Utilized U  
 Moderately utilized - MU  
 Moderately Not Utilized - MNU  
 Not utilized - NU

S/N	ITEMS	U	MU	MNU	NU
54	Work station ( Whaler)	-	3	8	2
55	Multi meter- Digital	-	2	7	4
56	Multi meter-Analogue	-	1	9	3
57	Booster/Meter	1	2	8	2
58	White Light	-	3	7	3
59	Assorted phone panels	1	1	8	3
60	Magnifying glass	-	4	5	4
61	Computer (Desk or Laptop)	1	-	10	2
62	Tonado (software box)	1	2	5	5
63	Radio training module	1	2	7	3
64	Television training module	1	2	5	5
65	Probe/Logic pulsar	1	3	3	6
66	Transformer training module	1	2	5	5
67	Oscilloscope	--	4	4	5
68	Pattern generator	1	3	6	3
69	Frequency converter	1	1	6	5
70	Variable power supply	-	3	8	2
71	Picture tube Tester	1	4	4	4
72	Isolation Transformers	-	3	5	5
73	Vector scope	-	2	6	5
74	Signal strength Meter	-	4	3	6
75	Signal generator	-	1	6	6
76	Black and white TV	-	4	4	5

**QUESTIONNAIRE ON APPRAISAL OF VOCATIONAL TRAINING PROGRAMME  
IN RTV AND GSM SERVICING IN VOCATIONAL TRAINING CENTRE IN GOMBE  
STATE**

**Section A: Bio Data of the respondent in Gombe State.**

Please indicate by ticking (√) the response most applicable to you.

Administrator ( )

Trainer (42 )

**Section C: Technical skills required by trainers of RTV and GSM servicing Trade at Vocational Training Centres in Gombe State.**

Please indicate by ticking (√) in the spaces provided the technical skills required by trainers of RTV and GSM servicing Trade at the Vocational Training Centres in Gombe State.

Key:

Required - (R)

Moderately Required (MR)

Moderately Not Required (MNR)

Not Required - (NR)

S/N	TECHNICAL SKILLS: Ability to;	R	MR	MNR	NR
40	Read multi-meter for faulty diagnosis.	12	13	3	14
41	Read oscilloscope in faulty diagnosis	12	7	9	14
42	Use signal generator	14	5	9	16
43	Use soldering iron	17	10	3	12
44	Use hand tools (screwdriver, plier, Allen key)	11	7	8	16
45	Constructing new circuit (vibrator)	13	9	10	10
46	Clear fault at ( power, vertical deflection, horizontal deflection section)	11	14	3	14
47	Radio receiver repairs	11	8	13	10
48	Solving hardware problem in GSM	15	8	10	9
49	Solving software problem in GSM	18	6	10	8
50	Video machine repairs	11	10	10	11
51	Repairs of CD/DVD appliances/device	12	9	8	13
52	Use satellite dish installation	12	7	12	11
53	Interpreting schematic diagram	12	10	10	10

**Section D:** the level of utilization of training tools and equipment in RTV and GSM servicing Trade well utilize in Vocational Training Centres in Gombe State

Please indicate by ticking in the spaces provided (✓) are the training facilities in RTV and GSM servicing Trade well utilize in Vocational Training Centres in Gombe State

Key:

Utilized U

Moderately utilized - MU

Moderately Not Utilized - MNU

Not utilized - NU

S/N	ITEMS	U	MU	MNU	NU
54	Work station ( Whaler)	18	7	7	10
55	Multi meter- Digital	19	16	5	2
56	Multi meter-Analogue	7	17	10	8
57	Booster/Meter	9	12	16	5
58	White Light	4	15	19	4
59	Assorted phone panels	14	7	13	8
60	Magnifying glass	20	7	10	5
61	Computer (Desk or Laptop)	20	8	6	8
62	Tonado (software box)	7	9	20	6
63	Radio training module	15	11	10	6
64	Television training module	15	12	9	6
65	Probe/Logic pulsar	10	14	12	6
66	Transformer training module	12	10	16	4
67	Oscilloscope	8	8	14	12
68	Pattern generator	12	15	10	5
69	Frequency converter	10	8	12	12
70	Variable power supply	14	14	9	5
71	Picture tube Tester	10	17	7	8
72	Isolation Transformers	3	17	11	6
73	Vector scope	7	14	9	12
74	Signal strength Meter	5	19	10	8
75	Signal generator	5	18	13	6
76	Black and white TV	22	7	5	8

**Appendix D: Curriculum Table of NVC in RTV and GSM Repairs**

Term I					Term II					Term III
		L	P	TW H			L	P	TW H	Industrial Attachment (3 Months)
CSK11 1	Communication skill I	1		1	CSK12 1	Communication skill II	1		1	
VMT1 11	Mathematics I	1	-	1	VMT12 1	Mathematics II	1	-	1	
VPH11 1	Physics I	1	-	3	VPH12 1	Physics II	1	-	3	
VCH11 1	Chemistry I	1	2	3	VCH12 1	Chemistry II	1	2	3	
VBE11 1	Basic electricity/ electronics I	1	2	4	VBE12 1	Basic electricity /electronics II	1	2	4	
VTD11 1	Technical drawing I	-	3	3	VTD12 1	Technical drawing II	-	3	3	
VRG11 1	Electronics amplifiers I	2	3	5	VRG12 1	Electronics amplifiers II	2	3	5	
VRG11 2	Electronics circuits & symbols I	2	3	5	VRG12 2	Electronics circuits & symbols II	2	3	5	
Total contact hours		9	1 6	25	Total contact hours		9	1 6	25	

Key: Learning theory hour (L), practical learning hour (P) and Total week hour (TWH)

Figure 3: Curriculum Table of NVC in RTV and GSM Repairs for the First Year (Source: NBTE 2007)

Term I					Term II					Term III
		L	P	TW H			L	P	TW H	Industrial Attachment (3 Months)
CSK2 11	Communicati on skill III	1	-	1	CSK2 21	Communicatio n skill IV	1	-	1	
VMT2 11	Mathematics III	1	-	1	VMT2 21	Mathematics IV	1	-	1	
VPH2 11	Physics III	1	2	3	VPH2 21	Physics IV	1	2	3	
VCH2 11	Chemistry III	1	2	3	VCH2 21	Chemistry IV	1	2	3	
VTD2 11	Technical Drawing I	-	3	3	VTD2 21	Technical Drawing IV	-	3	3	
ICT21 1	Info. & Comm. Tech. I	1	-	1	ICT22 1	Info. & Comm. Tech. II	1	-	1	
ENT2 11	Entrepreneurs hip I	1	-	1	ENT2 21	Entrepreneursh ip II	1	-	1	
VRG2 11	Radio Comm. I	2	6	8	VRG2 21	Radio Comm. II	2	6	8	
VRG2 12	Television system I	2	6	8	VRG2 22	Television system II	2	6	8	
Total contact hours		1 0	1 9	29	Total contact hours		1 0	1 9	29	

Figure 4: Curriculum Table of NVC in RTV and GSM Repairs for the Second Year  
(Source: NBTE 2007)

Term I					Term II					Term III
		L	P	TW H			L	P	TW H	Industrial Attachment (3 Months)
CSK3 11	Communicati on skill III	1	-	1	CSK3 21	Communicatio n skill IV	1	-	1	
VMT3 11	Mathematics III	1	-	1	VMT3 21	Mathematics IV	1	-	1	
VTD3 11	Technical Drawing V	-	3	3	VTD3 21	Technical Drawing VI	-	3	3	
VRG3 11	Satellite System I	2	6	8	VRG3 21	Satellite System II	2	6	8	
VRG3 12	Mobile Phones Repair I	2	6	6	VRG3 21	Mobile Phones Repair II	2	6	8	
VRG3 13	Project	-	6	6	VRG3 22	Project	-	6	6	
Total contact hours		6	2 1	27	Total contact hours		6	2 1	27	

Figure 5: Curriculum Table of NVC in RTV and GSM Repairs for the Third Year (Source: NBTE 2007)

**Appendix E: NVC in Radio, TV and GSM Servicing (Draft) List of Training Tools and Equipment for a Class of 25 Students (In 5 Groups):**

**LIST OF TOOLS**

S/N	Tools	Quantity
1	Set of Screwdrivers – flats,(large, medium and small), asterisk, allen key, star	5 sets
2	Set of spanners – flat and box.	5 sets
3	Soldering iron	25 pieces
4	Soldering iron stand	25 pieces
5	Lead sucker	25 pieces
6	Long nose pliers	25 pieces
7	Pair of pliers	25 pieces
8	Side cutters	25 pieces

Figure 1: List of Training Tools for a Class of 25 Students in 5 Groups (Source: NBTE 2007)

S/N	Equipment	Quantity
1	Work station (Whaler) Machine (1.C extractor)	5
2	Multimeter - Digital	25
3	Multimeter - Analogue	25
4	Booster/Meter	25
5	White light	25
6	Assorted phone panels	25
7	Magnifying glass	25
8	Computer (Desk or Laptop)	5
9	Tonado (Software box)	5
10	Television Training Module	5
11	Radio Training Module	5
12	Probe/logic pulsar	25
13	Transformer Training Module	5
14	Oscilloscope	5
15	Pattern generator	5
16	Frequency Counter	5
17	Variable Power Supply	5
18	Picture Tube Tester	5
19	Isolation transformers	25
20	Vector scope	5
21	Signal strength meter	5
22	Signal generator	5
23	Black and White TV	5
24	Coloured TV	5
25	TV Training modules	5
26	Radio set	5
27	Video cassatte recorde	5
28	Video CD machine	5

Figure 2: List of Training Equipment's for a Class of 25 Students in 5 Groups (Source: NBTE 2007)

**Appendix F:** Distribution of Vocational Training Centres Base on Local Governments  
and Educational Zones in Gombe State

Educational zones	Local Government Area	Vocational Training Centre	No. of RTV and GSM servicing Administrators	No. of RTV and GSM servicing Trainers	Total
Gombe South					
	Shongom	Lapan	1	5	6
	Billiri	Tanglang	1	3	4
	Ballanga	Putuki	1	3	4
	Ballanga	Bam-Bam	1	3	4
	Kaltungo	Tunla	1	3	4
Gombe Central					
	Yamaltu Deba	Deba	1	3	4
	Yamaltu Deba	Hinna	1	3	4
	Akko	Tumu	1	3	4
Gombe North					
	Funakaye	Bolari East	1	3	4
	Kwami	Kwami	1	4	5
	Kukku	Dukku	1	3	4
	Nafada	Nafada	1	3	4
	Gombe	Gombe	1	3	4
Grand total			13	42	55

Source: Ministry of Education Gombe State (2010)

Appendix G: Table of Checklist

S/N	Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	AV(NA)	%NA	NR	%NA
1	Work station	18	3	10	8	-	6	8	-	0	2	8	-	3	66	5		25 pieces	
2	Multi-meter Digital	16	3	16	10	1	2	7	7	5	20	2	5	18	112	9		25 pieces	
3	Multi-meter analogue	22	2	18	12	3	2	10	4	4	20	2	4	20	123	9		25 pieces	
4	Booster/meter	20	1	10	3	-	1	3	-	10	5	2	-	4	59	5		25 pieces	
5	White light	19	1	5	18	-	3	8	-	0	1	3	-	2	60	5		25 pieces	
6	Assorted phone panels	19	2	15	3	-	4	9	-	0	3	2	-	5	62	5		25 pieces	
7	Magnifying glass	16	2	5	8	-	2	18	10	26	30	2	-	25	144	11		25	
8	Computer (desktop and laptop)	4	1	1	3	8	2	2	6	15	15	5	15	16	93	7		5	
9	Tonado (software box)	2	0	2	2	-	4	0	-	0	1	5	-	1	17	1		5	
10	Radio training module	3	0	1	3	-	3	1	1	2	1	4	-	1	20	2		5	
11	Television training module	2	0	0	3	-	4	2	-	1	1	2	-	1	16	1		5	
12	Probe/logic pulsar	21	0	0	4	-	5	3	-	0	-	4	-	-	37	3		25	
13	Transformer	2	0	2	2	-	3	2	2	2	1	2	-	1	19	1		5	



29	Set of screwdrivers flats (large, medium and small)	1	1	2	3	2	2	13	1	2	2	3	3	3	38	3		5	
30	Asterics	3	3	3	1	-	3	10	2	1	1	4	-	2	33	3		5	
31	Set of screwdriver Allen key	4	3	3	2	3	4	14	1	3	3	3	2	1	46	4		5	
32	Set of screwdriver star	1	2	2	3	2	1	30	2	1	4	6	2	5	61	5		5	
33	Set of spanners- flat and box	0	3	1	2	1	5	3	3	4	4	7	-	6	39	3		5	
34	soldering iron	18	4	15	12	5	3	23	5	12	18	2	30	17	164	13		25	
35	Soldering iron stand	22	4	20	12	-	2	20	10	11	15	2	-	16	134	10		25	
36	Lead sucker	16	3	18	12	-	2	7	-	14	10	5	16	9	112	9		25	
37	Long nose pliers	17	2	10	8	1	1	20	15	13	20	3	7	18	135	10		25	
38	Pair of pliers	19	3	21	10	5	2	19	13	11	23	5	7	20	158	12		25	
39	Side cutters	21	3	20	9	2	5	20	11	10	17	2	6	15	141	11		25	