

**UNIVERSITY OF EDUCATION, WINNEBA**

**AN INVESTIGATION INTO THE MANAGEMENT OF WORKSHOPS IN TECHNICAL  
SCHOOLS IN THE WESTERN REGION**



**DECEMBER, 2014**

UNIVERSITY OF EDUCATION, WINNEBA

AN INVESTIGATION INTO THE MANAGEMENT OF WORKSHOPS IN TECHNICAL  
SCHOOLS IN THE WESTERN REGION

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A Dissertation in the Department of **MECHANICAL TECHNOLOGY EDUCATION**,  
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Master of Technology (Mechanical) Degree.

DECEMBER, 2014

## DECLARATION

### STUDENT'S DECLARATION

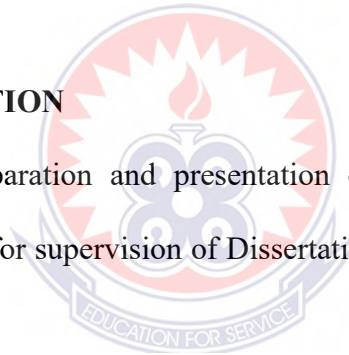
I, WISDOM FOLI ASEMSRO, declare that this Dissertation, with the exception of quotations and references contained in the published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE.....

DATE.....

### SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of Dissertation as laid down by the University of Education, Winneba.



NAME OF SUPERVISOR: MR STEPHEN K. AMOAKOHENE

SIGNATURE.....

DATE.....

## ACKNOWLEDGEMENT

I am much grateful to the Almighty GOD for giving me the wisdom, knowledge and guidance to successfully complete my programme.

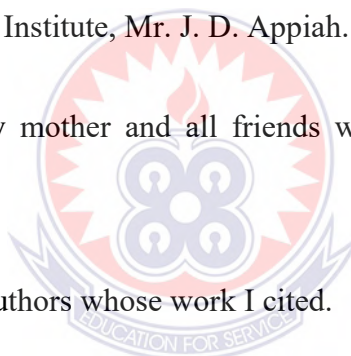
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## **DEDICATION**

This Dissertation is dedicated to my parents, brothers, sisters and all my love ones who supported me throughout my education.



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## ABSTRACT

This Dissertation focuses on assessing the facilities in Technical school workshops in the context of developing the country. A descriptive survey design was adopted. Three research questions were formulated to guide the study. 30-item questionnaire was developed based on the National Board for Technical Education (NBTE) standards on Technical school workshops, and was validated by two experts.

Data was collected from 20 administrators, 50 teachers, and 50 students randomly sampled and stratified along cluster of engineering and construction trades programmes in Technical schools in the Western Region. The total score was analysed by using parametric statistics from Statistical Package for Social Science (SPSS) to summarize the scores.

A two-tailed t-test with a p- value of 5% ( $\alpha = 0.05$ ) level of significance was implemented to find the significant difference between the respondents on the management of workshops in technical schools by age and educational background, while Spearman's correlation was also applied to test whether there was statistical significantly differences in the mean score.

Results revealed that administrators, teachers, and students shared similar views on the inadequacy of the facilities in Technical school workshops, majority of the respondents were thirty-five years and above, female enrolment into technical schools very low, the facilities in the school workshops were woefully inadequate.

Institution and Cooperate bodies must be sought for help rather than depending solely on the government. In spite of the numerous roles play by teachers in the management of the facilities, more is to be done, else the desire to produce competent graduates that can solve societal problem, would come to nought, unless the implementation of the recommended strategies in order to meet the goals of Technical Education as identified in the National Policy on Education.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of study

Throughout human history technology has had a profound effect on human development and on the progress of civilization. It took human about two million years to develop from nomads foraging for food in east central Africa to agricultural settler capable of augmenting their power with tools and domestic animals. This significant development ushered in the dawn of civilization. The several thousand years ago witness the development of the wheel, the chariot, the water wheel, and mechanical implements.

Material removal as a means of making things dates back to prehistoric times, where men learn to carve wood and chip stones to make hunting and farming implements. Stone Age, period of human technological development characterized by the use of stone as the principal raw material for tools. In a given geographic region, the Stone Age normally predated the invention or spread of metalworking technology. Human groups in different parts of the world began using stone tools at different times and abandoned stone for metal tools at different times. Broadly speaking, however, the Stone Age began roughly 2.5 million years ago, ended in some parts of the world 5,000 years ago, and ended in other regions much more recently. Today only a few isolated human populations rely largely on stone for their technologies, and that reliance is rapidly vanishing with the introduction of tools from the modern industrialized world.

Human ancestors living before the Stone Age likely used objects as tools, a behaviour that scientists find today among chimpanzees. Wild chimpanzees in Africa exhibit a

range of tool-using behaviours. For example, they use bent twigs to fish for termites, chewed wads of leaves to soak up liquid, and branches and stones as hammers, anvils, missiles, or clubs. However, when prehistoric humans began to make stone tools they became dramatically distinct from the rest of the animal world. Although other animals may use stone objects as simple tools, the intentional modification of stone into tools, as well as using tools to make other tools, appear to be behaviours unique to humans. This stone tool making and tool-using behaviour became central to the way early humans adapted to their environment and almost certainly had a profound effect on human evolution (Encarta, 2009)

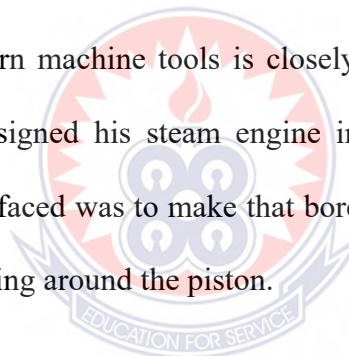
Archaeologists believe the Stone Age began about 2.5 million years ago because that marks the age of the earliest stone tool remnants ever discovered. The earliest recognizable stone artefacts mark the beginnings of the archaeological record, that is, the sum total of material remnants of ancient human activities. As recently as 5,000 years ago all human societies on the face of the earth were essentially still living in the Stone Age. Therefore, over 99.8 percent of humans' time as toolmakers from 2.5 million years ago to 5,000 years ago took place during the Stone Age. During the Stone Age our ancestors went through many different stages of biological and cultural evolution. It was long after our lineage became anatomically modern that we began to experiment with new innovations such as metallurgy, heralding to end the Stone Age. (Encarta, 2009)

The term Stone Age has been used since the early 1800s as a designation for an earlier, prehistoric stage of human culture, one in which stone rather than metal tools were used. By the early 1800s various archaeological sites had been found in Europe that contained mysterious items from evidently earlier, prehistoric times. Christian Thomsen, curator of the National Museum in Copenhagen, Denmark, developed a

classification scheme to organize the museum's growing collections into three successive technological stages in the human past: Stone Age, Bronze Age, and Iron Age. This three-age classification was quickly adopted and spread not only among museums in Europe but also among excavators, who were able to identify Stone Age remnants that were found below Bronze Age remnants, which were in turn found below Iron Age remnants as they dug down through layers of deposits at their sites. The fact that Stone Age remnants were found at the bottom layers indicated that they were the oldest.

These are archaeological evidence that, the ancients Egyptians used a rotating bowstring mechanism to drill holes.

Development of modern machine tools is closely related to the industrial revolution. When James Watt designed his steam engine in England around 1763, one of the technical problems he faced was to make that bore of the cylinder sufficiently accurate to prevent steam escaping around the piston.



John Wilkinson built water –wheel powered boring machine around 1775, which permitted Walt to build his steam engine. This boring machine is often recognized as the first machine tool.

Another Englishman, Henry Maudslay, developed the first screw-cutting lathe around 1880. Although the turning of wood had been accomplished for many centuries, Maudslay's machine added a mechanized tool carriage with which feeding and threading operation could be performed with much greater precision than any means before (Groover, 2011 pg. 498).

Eli Whitney is also credited with developing the first milling machine in the United States around 1818. Development of the planer and shaper occurred in England between 1800 and 1835. In response to the need to make components for the steam engine, textile equipment and other associated with the industrial revolutions. The powered drill press was developed by James Nasmyth around 1846, which permitted drilling of accurate holes in metal.

Most conventional boring machine, lathe machine, milling machine, planer, shapers and drill presses used today have the same basic design as the early version developed during the last two centuries. All these developments were carried out at a place called the workshop, Workshop can be define as a place where all knowledge, product, processes tools, methods and systems are employed in the creation of goods and services.

Encarta (2009), also defines workshop as a place where manual work is done, especially manufacturing or repairing of items. These workshops needs proper management else their goals can never come to reality.

## **1.2 Statement of the problem**

Technical schools have been training people to become craftsmen and technicians. Training qualifies them for jobs in both public and private sectors of the economy. Both sectors, according to Ndomi (2005), require well-trained and competent technicians who can operate and maintain the available technical equipment. Therefore, there is a need for qualitative technical schools for education and training to produce graduates that can perform competently in their chosen vocation without a need for pre-employment training. This condition can be met through a curriculum that is relevant

and comprehensive and a well equipped workshop with relevant training facilities. Students' practical projects are an important part of the curriculum in technical schools, but a supportive school environment is a fundamental requirement for the successful implementation of the curriculum. This aspect of the curriculum can only be implemented where facilities in the workshop are adequate and relevant. Availability of appropriate facilities enhances student learning by allowing them to be involved in demonstrations, and practice to build their skills. However most of the technical schools have been force to perform below standard, normal workshop practice, which forms 60 percent [standard set by National Board for Technical Education (NBTE)] of the technical institutes' curriculum, is fast disappearing on technical schools' time tables. Ideally in the workshops there is no equipment for acquiring skills, consumable materials purchased and distributed for practice; physical facilities arranged and given occupational direction so that, acceptable work habits and procedures are successfully executed, is nothing to write home about.

The workshops were originally designed and built for small populations of students. However, in recent times the student population has increased tremendously, thereby over-stressing the available space and facilities (Asilokum, 2004). To worsen the situation, the present state of technical school facilities are very poor, there are no planned means of maintenance of the already broken down equipment or means of purchasing new ones, there is little or no concern on the part of the community, teachers and students for the improvement of the present state of facilities (Puyate, 2002). This pathetic situation needs to be reverted, production and distribution of teaching resources/facilities revealed that tertiary institutions are hardly supported with educational resources. Resource support from foreign countries is no longer available to schools. Although modern teaching materials such as computers, flip charts,

projectors, videos, are to be found in the educational system, their distribution varies from school to school, Nnoli (2001, Pg. 199). The extent of the deterioration of educational structures such as physical plants, infrastructures and other facilities is amazing. In many schools, the non-availability of these facilities is more striking than their condition.

The situation is not different in all Technical Schools in Ghana; the researcher therefore want to investigate into the management of technical schools workshops in the Western region in order to ascertain the state of affairs to meet the goals of technical and vocational education which are synonymous to society needs. The intention is to provide feedback on the position of facilities meeting the policy objectives to educational planners and policy makers, particularly the National Board for Technical Education (NBTE)



### **1.3 Purpose of the study**

Given the scenario above, the researcher sets the following objectives to help him come out with a solution to the existing problem affecting technical schools workshops;

- Find out how adequate the facilities in technical schools workshops are.
- Find the effective ways of funding workshop facilities in technical schools.
- Find the teachers' role in managing the workshops.



#### **1.4 Research questions**

To be able to identify the problems affecting the management of workshops in technical schools, the following formulated questions were used to help come out with the real solutions to the problem.

- How adequate are workshop facilities in technical schools?
- What are the effective ways of funding the facilities in technical schools?
- How can teachers help in managing workshops in technical schools?

#### **1.5 Significance of the study**

The study is specifically centred on the alleviation of the workshop problems. It is also anticipated that researchers would get to know the peculiar problems that are being faced by workshop assistants and suggest modification as far as the workshop management is concerned.

The study is essential for good workshop management in Technical schools so that common problems like poor environment, lack of good care and maintenance of tools and machine tools could be dealt with maximum experience and attention. The study will guide government and educational planners to know exactly how to deal with the problem, and to student good working environment.

#### **1.6 Limitation and delimitation**

Every research has certain aspect that falls short of ideas which the researcher has to establish. The following conditions may prevent the researcher from reaching the estimated objectives.

- The academic work and other co-curricular activities within which the research is to be conducted would make the research work very stressful.
- Due to lack of financial and material resources, the sample size may reduce in relation to the entire population.
- Some of the questionnaire administered to respondents may not be returned, because of transport problem, time and resources available, the researcher may not be able to extend the study to other areas but choose technical schools in the Western Region.

### 1.7 Definition of Abbreviations and terms



CBOs	Community Base Organisations
CBT	Community Base Training
COTVET	Council for Technical and Vocational Education and Training
ETF	Education Trust Fund
GES	Ghana Education Service
JHS	Junior High School
MTFE	Medium Term Expenditure Frameworks
NBC	National Business Certificate
NBTE	National Board for Technical Education
NGOs	Non Governmental Organisation
NTC	National Technical Certificate

PTAs	Parent and Teachers Association
TVET	Technical and Vocational Education and Training
VAT	Value Added Tax

### **1.8 Organization of the study.**

This report comprises six chapters. Chapter one deals with the background to the study, statement of the problem, purpose of the study and research question. Other aspects are the significance, limitation and delimitations of the study.

Chapter two focuses on the review of the related literature, while the methodology of the study is the subject of chapter three. Chapter three covers the methodology, research design, population/sample and sampling procedures, and data gathering instruments, the variables of the study and methods of data analysis. In chapters four and five, results and discussion of the findings are represented.

Finally, the summary of findings, conclusion, and recommendations forms the concluding chapter of the study.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter deals with the review of related literature. The literature review has been divided into three areas. How adequate the workshop facilities in technical schools are? What are the strategies toward acquiring adequate workshop facilities in technical schools, and how teachers can help in managing workshops in technical schools?

#### 2.1 How adequate are workshop facilities in technical schools?

Technical schools have been training people to become craftsmen and technicians. Training qualifies them for jobs in both public and private sectors of the economy. Both sectors, according to Ndomi (2005), require well-trained and competent technicians who can operate and maintain the available technical equipment. Therefore, there is a need for quality technical schools for education and training to produce graduates that can perform competently in their chosen vocation without the need for pre-employment training. The major goal of vocational institutions is to prepare students for successful employment in the labour market, Finch & Crunkilton (1999). This condition can be met through a curriculum that is relevant and comprehensive and a well equipped workshop with relevant training facilities. School workshops offer opportunities for practical training of students in skill acquisition in their technical trade areas for future development of the key sectors of the economy, in order to meet the basic needs. Students' practical projects are an important part of the curriculum in technical schools, but a supportive school environment is a fundamental requirement for the successful implementation of curriculum, Bybee & Loucks-Horse (2000);

Penney & Fox (1997). This aspect of the curriculum can only be implemented, where facilities in the workshop are adequate and relevant. Availability of appropriate facilities enhances student learning by allowing them to be involved in demonstrations, and practice to build their skills. However most of the technical schools have been forced to perform below standard due to non availability, poor management or utter neglect of the required facilities in the workshops for effective training.

Atsumbe (2002), observed that, due to inadequate funding, normal workshop practice, which forms 60 percent [standard set by National Board for Technical Education (NBTE)] of the technical institutes' curriculum, is fast disappearing on technical school time tables. Ideally in the workshops, there are no equipments for acquiring skills, consumable materials purchased and distributed for practical works; physical facilities arranged to give occupational direction so that acceptable work habits and procedures are successfully executed are missing.

Towe (2000) and Asilokum (2004), maintained that, these workshops were originally designed and built for small populations of students. However, in recent times the student population especially in urban schools has increased tremendously, thereby over-stressing the available space and facilities. To worsen the situation, Puyate (2002), maintained that the present state of vocational education facilities is very poor, there are no means of maintaining the already broken down equipment or means of purchasing new ones, there is little or no concern on the part of government, some teachers and students for the improvement of the present state of facilities. This pathetic situation needs to be reverted in order to meet the goals of technical and vocational education as enshrined in the National Policy on Education.

According to the policy, the goals shall be to provide trained manpower in the applied sciences, technology and business particularly at craft (equivalent of high schools), advanced craft and technical levels; provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; to give training and impart the necessary skills to individuals who shall be self reliant economically.

At all levels of the nation's educational system and for all known and existing school types, instructional resources or teaching and learning materials are an indispensable factor in the attainment of goals (Mkpa, 2001). A study conducted by Onyejemezi (2001), on quality, production and distribution of teaching resources/facilities revealed that, tertiary institutions are hardly supported with educational resources, even in the face of 'Accreditation fever'. Resource support from foreign countries is no longer available to schools. The findings indicated that majority of the technical school workshops did not have adequate facilities, also library facilities, location of lavatories at one end of the workshop, locker space for each student, racks and boxes for storage of tools, first aid facilities and standard work benches were inadequate. This is in line with the work of Abdullahi (2003), that every training school faces the problem of providing and maintaining suitable workshops and appropriate facilities for technical and vocational training programs. These findings were also supported by Moja (2000) that, the problems of Technical and Vocational Education and Training (TVET) are made worse by the poor condition/inadequacy of training facilities.

Adequate workshop facilities are necessary for any quality learning to take place. Facilities aid the instructors to communicate more effectively and the learners to learn more interestingly, meaningfully and permanently.

Inadequate supply of standard work benches, first aid facilities and other teaching aids meant to enhance greater understanding and appreciation of the learning experiences is likely to have a negative effect on skill acquisition by students going through the programmes.

Anyakoha (1992), noted that, the development of useful skills can be reinforced by the appropriate selection and use of learning facilities and resources like workshop structures, working materials, teaching materials, workshop tools and equipment. In the same vein Uzoagulu (1992), warned that, where equipment and tools are not functional or adequately provided, technical training programs will suffer and will lead to the production of highly unskilled personnel, who are unemployable and unproductive. Therefore, inadequate workshop facilities in technical schools programmes deterred skill acquisition. Only a few workshops in the technical schools are adequate. This means that there is serious shortage of facilities in technical school. This confirms the study conducted by Aina (1999) that some schools lack not only workshops and laboratories, but also, where such are provided; they are ill-equipped and lack the basic tools and equipment for instruction. This implies that, the facilities need to be provided in the technical schools workshops for efficient response to society needs.

Although there are modern teaching materials such as computers, flip charts, projectors, videos, that are to be found in the educational system, their distribution varies from school to schools (Nnoli, 2001 Pg.199). The extent of the deterioration of educational structures such as physical plants, infrastructures and facilities, is amazing.

In many schools, the non-availability of these facilities is more striking than their conditions.

## 2.2 What are the effective ways of funding the facilities in technical schools

According to Aina (2000), performance at the National Technical Certificate (NTC)/National Business Certificate (NBC) examinations taken in technical schools in 1999 revealed very disturbing statistics, attributable to utter neglect, poor funding, and inadequacy of resources. Poor management of facilities resulted in failure rates from 14 percent - 48 percent in Electrical and Mechanical trades, 12 percent - 50 percent in Construction trades and 18 percent - 94 percent in Business trades.

According to the Act of 2008 (Act 718), of the Council for Technical and Vocational Education and Training, the Government of Ghana established the Council for Technical and Vocational Education and Training (COTVET). The objective of the Council is to 'coordinate and oversee all aspects of technical and vocational education and training in the country'. One of the Council's functions is to 'source funding to support technical and vocational education and training.

The establishment of the Skills Development Fund (SDF) is seen as one of a series of new mechanisms to improve efficiency and effectiveness of the TVET system and ensure sustainable sources of funding for TVET. To achieve this objective the SDF is designed to include responsive policy, governance structures, institutional arrangements, institutional capacities, systems and procedures to support life-long learning in TVET.

The SDF is embedded in the Government's (draft) TVET policy which has as its mission to "improve the productivity and competitiveness of the skilled workforce and raise the income-earning capacities of people, especially women and low-income groups, through the provision of quality-oriented, industry-focused, and competency-based training programmes and complementary services".



With reference to strategies toward acquiring adequate facilities in technical workshops, the private sector should be encouraged to initiate and participate in the provision of facilities, linkages between schools and the private sector should be strengthened, and alliance between schools and interest groups. This result is in consonance with observation made by Yakubu (2005) that, financing of institutions is becoming prohibitive and a heavy burden for government to bear alone. Yakubu urged proprietors to explore other sources of funds to enable them generate enough to adequately equipped their institutions for effective teaching and learning.

Edache (2001), stressed on the need for diversifying the sources of financing technical education, and advised that, foreign assistances should be sought by the state and local governments, where possible for rehabilitation of technical workshops in our schools. On the international perspective, various mechanisms to fund vocational education and training in South Africa are being developed; including the Medium Term Expenditure Frameworks (MTEFs), special purpose funding, program based funding and public-private partnership funding (Bester, 2004). Industries are supposed to be partners in progress to technical schools, as products from such institutions are employed by it, the findings show that industries should be sought through cooperation to assist schools. This is very important because by so doing products (students) are fully prepared to take appointment in the industry. Emphasizing the same point, although using a university as a case study, Gore & Leonard (2007) maintained that training tomorrow's leaders require a collaborative effort between industry and the university. Higher education must build collaborative partnerships, improve all forms of scholarship and provide opportunities for students to contribute to the common goal, Boyer (1990).

The government should solicit support from Non Governmental Organisations (NGOs), Parent Teacher Association (PTA) and Community Based Organisations (CBOs) for

assistance. This strategy for acquiring adequate facilities is in agreement with the works of Prew (2009); The study conducted in South Africa, revealed that the community should be involved in determining the development priorities in the schools, supplying voluntary and paid services, help the school raise and manage funds, and sitting on and running some committees. In the same vein Umar et al (2009), suggested that, Non Governmental Organisations (NGOs), Community Based Organisations (CBOs) and Parent Teacher Associations (PTA) should be made to play a vibrant role in moving technical education forward. Farauta (1999) identified the projects undertaken by the Parent Teachers Association to include the provision of generating plants, laboratory equipment and water tanks. In his study, Uzokwe (2000) concluded that, parents should try to give government moral and financial support toward technical education programmes to enable it to achieve its aims and objectives.

Respondents for that study attached great importance to the statement that ten percent of Education Tax Fund (ETF) should be used for the procurement of workshop facilities, five percent of Value Added Tax (VAT) should be utilized for workshop facilities, and that workshops should be used profitably for private jobs during weekends and public holidays. This confirms the work of Bajah (2001) and Umar (2005). Abdullahi (1998) observed that where schools workshops and laboratories are used profitably during evenings, weekends and public holidays, the skills of students are upgraded and the financial crunch of technical institutions is combated. Stressing the role of ETF in education Bojah (2001) averred that, the ETF's real goal should be to support educational dogmas that will produce technically skilled, empowered generation of women and men for the 21<sup>st</sup> century. The objective of ETF is to identify areas of weaknesses in the educational sector and intervene with funding to enhance educational facilities and infrastructure development, and promote creative's and

innovations. Writing on the funding of vocational centres and technical schools in a democracy, Umar (2005), stressed that funds realized from VAT should be used for financing of vocational and technical schools. Unless the shortages of facilities in technical schools workshops are addressed by all, or some of these strategies, the goals of technical and vocational education would be under.

### **2.3 How can teachers help in managing workshops in technical schools?**

Diamond (2006), explains that it require the teacher to scaffold learning to provide activities and structures of intellectual, social and emotional support to help learners to move forward in their learning, so that when these are removed the leaning is secured. He further stress on the need for teachers to learn continuously in other to develop their skills, adapt, and develop their roles, especially through classroom inquiry and be supported. They must attend workshops to learn new ways of organising the workshops.

Jenifer (2001), also states that, teachers' goal is to understand the research resources needed to effectively integrate and complete a lesson portfolio, based on the curriculum that allows him/her to raise the level of excellence in the classroom, to meet important learning objectives. The goal of technology integration is to use technology seamlessly in the classroom so that the technology itself is visible in support to learning a standard based curriculum. She further explains that, employing technology provide a variety of new ways to learn, and in the process foster independent thinking, problem solving, and collaborative learning.

The Ministry of Energy and Petroleum and the Council for Technical and Vocational Education and Training (COTVET) organised a 10-day oil and gas training workshop

for instructors from the Regional Maritime University, Takoradi Technical Institute and the Kikam technical Institute.

It was aimed at building the capacity of participants, instructing students, using Competence- Based Training (CBT) methods. The CBT is a form of training being championed by the COTVET, which lays emphasis on practical method and exposes trainees to standard and practices in industry. The Project Manager of the oil and Gas Capacity Building Project of the Ministry of Energy and Petroleum, Mr Samuel A. Afram, said some progress was being made in building the capacity of Ghanaians in the oil and gas sector.

Consequently, it became imperative for Ghana to quickly develop local capacity and capability in order to fully participate and support the oil and gas industry. The Executive Director of the COTVET, Mr Sebastian Deh, also said the council would support the three institutions to become centres of excellence, and challenged the participants to individually strive for professional excellences and act as change agents for Ghana's economic development.

The Oil and Gas Capacity Building Project focuses on enhancing technical skills in the sector by supporting training institutions to provide engineering, technical and professional training for Ghanaian workers needed by the industry through supporting instructors.

According to the report sponsored by the training division of Ghana Education Service prepared by Adu (former tutor at St. Joseph's Training College), tools and equipment, machines supplied and all facilities in workshop should be well managed and organised. The title of the Report is 'Technical skills with drawing report on development for 1988 - 1997'. The purpose of the Report was to ensure proper

management and organisation of workshops tools/equipments and machines, to get their statistical data in all training schools in Ghana for Ghana Education Service.

According to Chudley, (1974, Pg. 1), the workshop demands the best facilities which are economically possible for any particular contract; this will promote good relationship between management and staff, and reduce loss of materials due to theft, accident management and vandalism. He further stressed that, ‘the better the facilities and amenities provided, the greater will be the contentment of staff which will ultimately lead to higher productivity.’, from the above quotations, one can say that irreparable and uncontrollable loss of tools, occurrences of accidents and damages in technical schools workshops, may be due to mismanagement of tools and equipment, machines supplied and other facilities by tutors and students. This leads to low productivity of students’ achievement and shortages of facilities.

According to Walton, (1974, Pg. 382), to ensure safety in workshop, students must generally work under the guidance of an instructor or shop foreman in a workshops, where safe working conditions and proper installation and guarding of machines are governed by ‘safety regulations’. To him, the craftsman without such training and guidance must take extra care until he has become familiar with the various types of tools and machines. He further warns that ‘familiarity breeds contempt’ and therefore workers must always give their full attention to the job, no matter how confident one may have in the use of tools and machines, with respect to Walton’s statement, the researcher supports that, the continual breakdown of tools, equipments and machine tools in technical schools workshops may be due to lack of workshops assistants or technicians and tutors in various technical schools in Ghana. Where they are available, they may lack workshop management education.

According to Lewis, (1963, Pg. 1). The most versatile of the machine tools is the centre lathe. Also, according to Sackey and Amoakehene, (1994, Pg. 168). 'Among the machine tools used in the metal workshops, the lathe is both the oldest and the most versatile. From the above, it stands to reason that, the breaking down of machines in workshops such as lathe due to poor management is directly affecting products of the schools and causing a great harm to the economy and needs a great attention'. The incoming students shall suffer in the near future if care is not taken.

Furthermore, Walton, (1974, Pg 455) says, 'generally, public services which serve and affect other people, can only be carried out by licensed tradesmen, installation and maintenance of electrical equipments, (writing power outlets, switches, electric motors)', plumbing, drains, gas fittings and telephone. To him incorrect repairs of these items could cause a breakdown in services affecting neighbours and could cause injury and damage to life and properties

In some of the technical schools workshops, the writer observed that some tools are not kept in place after working. According to Kirkham, (1963), 'tools should always be returned to the places from where they were taken'. He said that workshops must be kept clean to achieve standard of workmanship, diligence and patient application of duties.

According to Hibberson, (1986, Pg. 13) 'workshops can be dangerous places, unless adequate precautions are taken'. It is essential to ensure that the layout of space, the use of tools, machines and equipments, movement and attitudes of students are organised in a safe manner. Sackey, (1994, Pg. 85), pointed out that, 'important information considered to be more appropriate in the workshop are; organisation of work, communication of safety regulations, controls of the workshop environment and

leadership role played by the teacher in the use of materials, tools, machines, from the above, effective workshop management entails the aforementioned factors enumerated by Sackey in workshop management field of discipline’.

According to Bediako, (1998, Pg.1), the workshop management became necessity in teacher training schools as a condition for offering technical skills by JSS students in 1987/88 academic year, so that GES would get enough teachers from technical training schools to feed the technical schools and Junior High Schools (JHS) in Ghana. To him, workshop management goes with a deep knowledge of the technical skills subject, so that maintenance of tools, storage of materials and installations of equipment would be done according to the approved principle.

According to Sackey, (1994, Pg. 83), ‘management is the act of directing human activities, and by implication, all teachers are managers’. He stated the two laws of good management as ‘prevention is better than cure and self-control is better than self imposed’. He related the managerial affairs to humanity since, the teachers who are also managers by implications, deals directly with students, workshop assistants, staff and headmasters. Therefore, the most effective workshop management depends on the teacher’s ability to organize, control, co-ordinate, communicate and lead in all matters relating to workshop activities through workshop management, with respect to human and material resources. A small mistake or mismanagement can bring irreparable ruin to the whole workshop; hence prevention is better than cure.

Adag and Sterns,(1987, Pg 39), defined management as, ‘a process of planning, organising and staffing, directing and controlling activities in an organisation in a systematic way to achieve a common goal’. Also Buchaman and Huezynski, (1985, Pg. 347) said that ‘management can be viewed as a function or set of functions that must be



carried out if an organisation is to survive'. From the above definitions, workshop activities, like any other organisation may survive on good management. According to Buchaman and Huezynski, (1985, Pg 343), the function of management includes;

- Establishing the overall purpose or policy of the unit for which they are responsible.
- Forecasting and planning for the future.
- Organizing work, allocating duties and responsibilities
- Giving instructions or orders
- Checking that performance is according to plan.

Ruse and Katz, (1957 Pg. 11) defined management as 'a careful arrangement or method of doing something'. According to Everard (1998, Pg. 134), ways should be sought to involved all members of an organisation in management, even if they are not called managers. From the above explanations by numerous authors and writers, with respect to management of workshops, the overall principles of management involves planning, organizing, controlling, leading, arranging, coordinating and communication using humans and materials resources available.



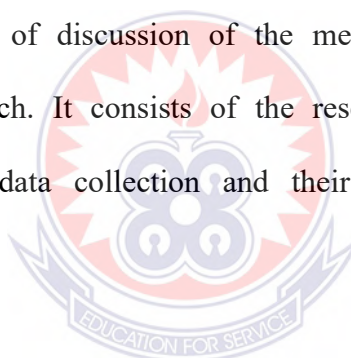
## CHAPTER THREE

### METHODOLOGY

#### 3.0 Introduction.

In order to get the information for this study, the researcher adopted a research survey technique. Yin, (1984) argues in favour of the use of survey in educational fact-findings, because, they provide great deal of information. The intention of the survey is to gather data at a particular point in time to describe an existing condition. The descriptive nature of the research was use in order to gain information into the management of workshops in technical schools in the western region.

This chapter consists of discussion of the methodology and procedures used in conducting the research. It consists of the research design, population sampling, research instrument, data collection and their administration and data analysis procedures.



#### 3.1 Research Design

The plan and the structure of a research is the design. The design is very important because a research that is not properly plan can produce wrong and misleading result. A researcher needs clear design before he or she sets out to collect data. It helps to know in advance the statistical test that will be appropriate for analyzing the data.

The researcher uses descriptive survey design to collect and statistically analyze the data. This is because, descriptive design involves collecting data in order to test hypothesis or answer research questions concerning the current status of the subject of the study (Gay, 1992).it also a methods in quantitative research in which the researcher

administers a survey to the sample or to the entire population to describe attitudes, opinions, behaviours or characteristic of the population Creaswell (2012). Survey uses standard set of question to get a broad overview of a group's opinion, self-reported behaviours, demographic and background information Onley and Barnnes (2008). It deals with inferring relationship among variables and describing their relationship. A questionnaire is designed to address the respondents' perceptions on the management of workshops in technical schools.

### **3.2 Population and Sample**

The study covers technical schools in the Western Region. A stratified random sampling technique was used in order to involve a variety of proportional participants in the management of technical schools workshops. Stratified random sampling was used to divide populations into strata, and then randomly select samples from each stratum. There were three strata in the sample with 20-Administrators (Principals, Vice Principals & Heads of department), 50-Teachers, and 50-Students represented. Therefore, the sample for the study comprises of 120-subjects from the clusters of engineering and construction trade programs in Technical schools in the area of the study.

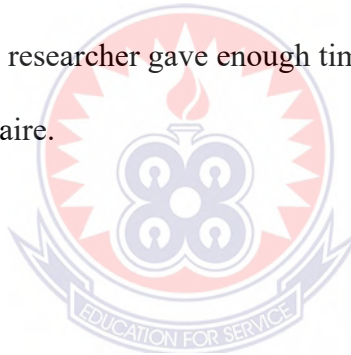
### **3.3 Validity of Instrument**

A 30-item structured questionnaire was used for data collection. It was developed based on the existing NBTE standards on technical schools workshops and literatures on the subject matter. Two different response categories was used based on a three point rating scale, they are: Very adequate (3); adequate (2); Inadequate (1); in research

question one, and strongly agreed (3); Agreed (2); Disagreed (1); was used in research question two and three. The instrument was subjected to face validation by experts, comprising of a staff from NBTE, supervisors from the department of Mechanical Technology Education, University of Education, Winneba, Their suggestions was used to refine the questionnaire. A pilot testing of the instrument was carried out with forty respondents selected from the three strata for its validity.

### **3.4 Data Collection and Administration**

The questionnaire was administered to respondents of each selected stratum after pre-testing. The purpose of the study was explained to the respondents before giving out the questionnaires. The researcher gave enough time of one week for the respondents to complete the questionnaire.



### **3.5 Data Analysis**

The total score of the study in terms of respective respondents was analysed by using parametric statistics from Statistical Package for Social Science (SPSS) to summarize the scores. A two-tailed t-test with a p- value of 5% ( $\alpha = 0.05$ ) level of significance was implemented to find the significant difference between the respondents on the management of workshops in technical school by age and educational background, while Spearman's correlation was also applied to test whether there was statistical significantly differences in the mean score.

## CHAPTER FOUR

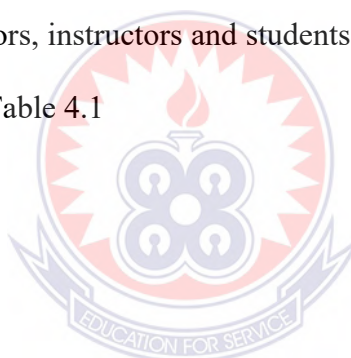
### DATA ANALYSIS AND PRESENTATION OF RESULTS

#### 4.0 Introduction

The results of the data analysis of the investigation into the management of workshop facilities in technical schools in the western region of Ghana are presented in the order of respondents' demographic and the research questions as follows

#### 4.1 Respondents Demographic

To find answers to this research topic, standard questions were presented to one hundred and twenty respondents (N) to indicate their views. This number was a constituent of administrators, instructors and students. The demographic characteristics of these are presented in Table 4.1



**Table 4.1 Respondents demographic.**

$$n_1=20, n_2=50 \& n_3=50$$

$n_1, n_2$  &  $n_3$  = Number of Administrators, Instructors and students respectively

Variable	Frequency	Percentages (%)
<b>Gender</b>		
Male	106	88
Female	14	12
<b>Age</b>		
18-24 years	47	39
25-34 years	21	18
35 years and above	52	43
<b>Educational background</b>		
Technical	53	44
Polytechnic	12	10
University	55	46
<b>Status in school</b>		
Student	50	42
Instructor	50	42
Administrator	20	16

Table 4.1 represents the demographic data of respondents surveyed for this study. The result indicates that majority of the respondents were male representing 88% only 14 were females representing 12%. In the case of age distribution, the results further reveals that 43% of the respondents were 35 years and older but 39% were between the ages 18-24 years. On the educational background of the respondents, the results shows that almost half 46% of the respondents have had a university education while 44% were also reported to have had a technical school education and only 10% of the respondents had polytechnic education,. Investigation into respondent's status in the schools also revealed that, 42% of them were instructors while 42% also students and the remaining 16% were administrators.

## 4.2 Research Question One

How adequate are the facilities in Technical Schools Workshops?

To answer this research question, facilities required in the workshops based on NBTE standards were presented to administrators, instructors and students to indicate their adequacies; their responses are as presented in Table 4.2

**Table 4.2 Respondents percentages, mean scores and standard deviations on the adequacy of facilities in technical schools N=120**

$n_1=20, n_2=50 \& n_3=50$

Item	Percentage			Mean(SD)
	Very adequate	Adequate	Inadequate	
Electricity supply from national grid	12	68	20	1.91 (.565)
Provision of standard work benches	16	54	30	1.86 (.665)
Provision of platform for material and finished projects	13	31	56	1.47 (.718)
Planning and drawing space for 12 students	6	42	52	1.40 (.608)
Uninterrupted energy supply	6	40	54	1.37 (.609)
A workshop space for 20 students at a time	11	13	76	1.35 (.669)
Periodically tested fire extinguishers	6	13	81	1.25 (.554)
A lavatory at one end of the workshop	7	11	82	1.24 (.565)
Locker space for 20 students at a time	3	11	86	1.16 (.433)
State of air condition, fans, illumination	1	8	91	1.09 (.317)

**Response scale very adequate = 3, adequate = 2 inadequate = 1 (source: field survey 2014)**

Table 4.2 is the adequacy of workshop facilities in the technical schools in the Western Region. The result presented indicates that most of the workshop facilities in technical schools were woefully inadequate. Respondents rated all the ten items as inadequate except for two items which were considered as adequate by the respondents as far as

the state of workshop facilities are concerned. Even though, most of the items were considered as inadequate, respondents placed preferences on some items except for electricity from the national grid ( $M=1.91$ ,  $SD=.565$ ) and provision of standard work benches ( $M= 1.86$ ,  $SD=.665$ ) which were considered adequate. However, provision of platform for materials and finished projects ( $M=1.47$ ,  $SD=.718$ ), planning and drawing space for twelve students ( $M=1.40$ ,  $SD=.608$ ) were the two items considered less inadequate by respondents. Respondents however considered lavatory at one end of the workshop ( $M=1.24$ ,  $SD=.565$ ), locker space for 20 students ( $M=1.16$ ,  $SD=.433$ ) and state of air condition, fans and illumination ( $M=1.09$ ,  $SD=.317$ ) were the three most inadequate facilities in their schools workshops.

#### **4.3 Research Question Two**

##### **What are the effective ways of funding facilities in technical schools?**

The effective ways of funding workshop facilities in technical schools were dear to the heart of the researcher. The researcher who is investigating into the management of workshop facilities sought to examine some effective ways that might help in managing the facilities at the workshops. The results are presented in Table 4.3

**Table 4.3 Respondents mean scores, standard deviation and mean rating on effective ways of funding facilities in technical schools**

$n_1=20, n_2=50 \& n_3=50$

Item	Mean	SD	Mean rating
Assistance from industries through co-operation	2.74	.442	1
Funds from Education Trust Fund (ETF)	2.69	.499	2
A certain percentage from VAT	2.62	.551	3
Support from District Assemblies	2.58	.574	4
Encouraging Linkage between private sector and schools	2.58	.616	5
Government should solicit support from NGOs and PTAs	2.51	.580	6
Support from community based organisations (CBOs)	2.25	.538	7
Workshops should be used profitably for private jobs	1.74	.750	8
“Protest writing” to concerned authorities	1.57	.764	9
Taxing parents annually	1.48	.710	10

**Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)**

Table 4.3 displays the results on effective ways of funding facilities at the workshop of Technical Schools. The results indicate that the respondents agreed to almost all the items as effective ways of which facilities at the schools workshop could be funded. This is because most of the items were rated 2 and above, the rated items in preferences even though they agree on the fact that they are effective ways to fund facilities, respondent strongly agreed that, assistance from industries through co-operation ( $m= 2.74, SD=.442$ ) is the most effective way which can be used as a source to fund facilities at the Technical Schools Workshops. Furthermore, the respondents considered Funds from Education Trust Fund (ETF) ( $m= 2.69, SD = .499$ ) as the second most effective way of funding facilities at the workshop. Again they considered approving a certain percentage from Valued Added Tax (VAT) as another effective way that can be used to fund the facilities. Even though most of the items



were agreed upon by the respondents some were not considered, using the workshop for profit gains from private jobs ( $m= 1.74$   $SD= .750$ ), Principals protest writing to concerned authorities ( $m= 1.57$ ,  $SD = .764$ ) and taxed parents annually ( $m= 1.48$ ,  $SD = .710$ ) were the three least items considered as effective ways for funding facilities at the workshop.

#### 4.4 Research Question Three

##### The role teachers played in Managing Workshop Facilities

The researcher therefore examined the roles of the teacher that could help manage the workshop facilities in Table 4.4

**Table 4.4 Respondents mean scores, standard deviation and mean rating on the role teacher's play in managing workshop facilities**

$n_1=20$ ,  $n_2=50$  &  $n_3=50$

Item	Mean	SD	Mean rating
safety rules are enforced in the workshop	2.57	.604	1
supervise students during practical periods	2.56	.547	2
teachers develop programs that are practiced by students	2.25	.641	3
regular field trips are organized for students	2.18	.756	4
check stores and control stock at the end of every term	2.08	.637	5
teachers write reports on malfunction or faulty equipment	2.04	.703	6
maintenance week is annually celebrated in the school	1.83	.795	7
teachers have access to the internet easily	1.76	.747	8
film of good maintenance culture are shown in school	1.62	.701	9
Use of advanced computer aided equipment during teaching	1.61	.759	10

**Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)**

Table 4.4 presents the role teachers play in managing workshop facilities. Teachers were quizzed to find out the extent to which they agree or disagree to some statement as a role when played could help in managing our workshop facilities. Respondents totally either agree or strongly agreed to all the ten statements as effective roles when adhered to would help in the management of the facilities. This is because they rated all the statement 2 and above. However, some statements were rated higher than others. For instance enforcing safety rules in the workshop ( $m= 2.57$ ,  $SD = 604$ ) was the most concerned role respondents strongly agreed to. Again supervising students during practical periods ( $m= 2.56$   $SD = .547$ ) was the second most concerned role respondents considered. However using advanced computer aided equipment in during teaching ( $m=1.61$ ,  $SD = .759$ ) was the least concerned role respondents considered when it comes to managing workshop facilities.

#### **4.5 Relationship between Respondents Educational level and their Role in Managing Workshop Facilities**

Respondents attest to the fact that they agree to the statements that a role if adhered to would help in the managing of workshop resources. Even though they attested to that fact, the researcher sought to find out if there exist a statistical relationship between the educational level of respondents and their level of agreement to the role played in managing workshop facilities.

**Table 4.5**  
**Use of advanced computer aided equipment during teaching \* educational level**

Use of advanced computer aided equipment during teaching	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	11	2	7	20
	55%	10%	35%	100%
Agree	9	3	21	33
	27%	9%	64%	100%
Disagree	33	7	27	67
	49%	10%	41%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

( $\chi^2=6.339$ ,  $p=.175$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

Table 4.5 is the relationship between the level of education and the use of advanced computer aided equipment during teaching as a role played in managing workshop facilities. The result indicates that, majority 55% of the respondents who have had Technical Education seems to strongly agree to using advanced computer aided equipment during teaching, as a role played in workshop facilities management. Moreover, more than half 64% of respondents who disagreed to that assertion were those who have had university education. However, the chi square analysis ( $X^2 = 6.339$ ,  $P = .175$ ) showed no statistical significant association between the two variables

**Table 4.6****Film of good maintenance culture are shown in school \* educational level**

Film of good maintenance culture are shown in school	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	9 60%	0 0%	6 40%	15 100%
Agree	20 45%	5 12%	19 43%	44 100%
Disagree	23 38%	7 12%	30 50%	60 100%
Total	52	12	55	119
%	44%	10%	46%	100%

( $\chi^2=3.470a$ ,  $p=.482$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey

2014)

Table 4.6 shows association between filming of a good maintenance culture to students and educational level. The results indicate that, there were differences in opinion to which the respondents agreed or disagreed to the statement. For instance 60% of respondents who have attained Technical school education strongly agree to that statement while 40% of those who holds university education also strongly agreed to it. Again, half 50% of the respondents who totally disagreed to that statement were those with university education. Less than two thirds, 38% who also disagreed were those with Technical school education. Here again in spite of the differences in opinion to which the respondents agreed or disagreed to the statement, there were no statistical significant association between level of education and ability to film a good maintenance culture in schools. Chi square analysis ( $X^2 = 3.470$ ,  $P = .482$ ).

**Table 4.7****Maintenance week is annually celebrated in the school \* educational level**

Maintenance week is annually celebrated in the school	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	18	0	11	29
	62.0%	0%	38%	100%
Agree	25	4	12	41
	61%	10%	29%	100%
Disagree	10	7	32	49
	21%	14%	65%	100%
Total	53	11	55	120
%	44%	10%	46%	100%

( $\chi^2 = 21.777a$ ,  $p = .000$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

Table 4.7 tabulates the association between educational level and celebration of maintenance week annually in school. The outcome reveals that, more than half 62% of the respondents who strongly agreed that celebrating maintenance week annually in school in managing workshop facilities were those with Technical education, in the case of disagree, majority 65% were those who reported to have had a university education. The Chi square analysis ( $X^2 = 21.777a$ ,  $P = 0.000$ ) indicates a strong statistical association between the two variables.

**Table 4.8**  
**Teachers write reports on malfunction or faulty equipment \* educational level**

Teachers write reports on malfunction or faulty equipment	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	14	4	14	32
	44%	12%	44%	100%
Agree	28	7	26	61
	46%	12%	43%	100%
Disagree	11	1	15	27
	41%	4%	55%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

( $\chi^2 = 2.242a$ ,  $p = .691$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

In finding answers to the role played by teachers in managing facilities, the respondents were quizzed to find out if teachers report when equipment are faulty or malfunction (Table 4.8). The outcome reveals that, out of the 32 respondents who strongly agree that, teachers write reports on faulty equipment, 44% were holders of university education while 44% were holder of Technical school education, 55% of respondents with university education totally disagree that teachers write reports. 41% respondents with Technical school education disagree to this role played by teachers. However, Chi square analysis ( $X^2 = 2.242a$ ,  $P = 691$ ) showed no statistical association between the two variable.

**Table 4.9**  
**Teachers develop programs that are practiced by students \* educational level**

Teachers develop programs that are practiced by students	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	28	3	12	43
	65%	7.0%	28%	100%
Agree	21	5	37	63
	33%	8%	59%	100%
Disagree	3	4	6	13
	23%	31%	46%	100%
Total	52	12	55	119
%	44%	10%	46%	100%

( $\chi^2 = 18.797a$ ,  $p = .001$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

Association between Educational background of respondents and teachers role by developing programmes that are practiced by students is displayed in Table 4.9. The results reveals that more than half ( $n = 28$ , 65%) of the respondents with Technical school education strongly agreed. ( $n = 12$ , 28%) of the respondent who holds university education also reported that they strongly agreed to the statement. Thirteen respondents disagreed out of this number, 6 representing 46% were those who holds Polytechnic education. The remaining 23% were those who hold technical school education. However (Pearson's Chi Square = 18.797,  $P = .001$ ) suggest a significant association between the variables.

**Table 4.10 Regular field trips are organized for students \* educational level**

Regular field trips are organized for students	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	34	4	9	47
	72%	9%	19%	100%
Agree	11	4	33	48
	23%	8%	69%	100%
Disagree	8	4	13	25
	32.0%	16.0%	52%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

( $\chi^2 = 28.339a$  ,  $p = .000$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

In Table 4.10 the respondents were required to indicate the level of agreement or disagreement with the assertion that, teachers organized regular field trips for students as a role in managing workshop facilities.

Analysis of the responses indicates that, less than three-fourth 72% of the respondents who strongly agree were Technical education certificate holders less than one-tenth (9%) were polytechnic holders. Furthermore out of the 48 respondents who agree to the statement, more than half 62% were graduates, and 11 respondents were holders of Technical school education representing 23%. The Chi square analysis suggests a strong statistical significant association between the two variables ( $X^2 = 28.339$ ,  $P = 0.000$ ).



**Table 4.11 Teachers has access to the internet easily \* educational level**

Teachers has access to the internet easil	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	13	1	8	22
	59%	4%	37%	100%
Agree	20	6	20	46
	43%	13.0%	44%	100%
Disagree	20	5	26	51
	39%	10%	51%	100%
Total	53	12	54	119
%	44%	10%	46%	100%

( $\chi^2 = 3.238a$ ,  $p = .519$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

Easy access to the internet was among the major factors considered by respondents as could help them manage workshop facilities. The researcher therefore sought to find out the relationship that exists between the extent of agreement or disagreement and their education level. The report reveals that 59% of the respondents with technical school education strongly agree, 44% of those with university education agree to the assertion and 39% of the respondents with Technical school Education disagree to the assertion. The results were presented in relation to the educational level of respondents yet, no statistical significant association was found between the two variables. (Pearson's Chi Square = 3.238, P = 519).

**Table 4.12**  
**Check stores and control stock at the end of every term \* educational level**

Check stores and control stock at the end of every term	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	18	1	10	29
	62%	3%	35%	100%
Agree	29	9	33	71
	41%	13%	46%	100%
Disagree	6	2	12	20
	30%	10%	60%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

**( $\chi^2 = 6.641a$ ,  $p = .156$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)**

The association between educational level of respondents and extent to which they agree or disagree to checking stores and controlling stock at the end of every term is presented in Table 4.12. It was observed that, the majority 68% of the respondents who strongly agree to the assertion were those with Technical school education, while 35% were holders of university education. Again, more than half 59% of respondents who agreed to the assertion either hold a Polytechnic certificate or a bachelor's degree. However, Pearson's Chi Square analysis conducted reveals that there was no statistically significant relationship between the two variable ( $X^2 = 6.641a$ ,  $P = 156$ ).

**Table 4.13 Supervise students during practical periods \* educational level**

Supervise students during practical periods	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	35	5	30	70
	50%	7%	43%	100%
Agree	17	7	23	47
	36%	15%	49%	100%
Disagree	1	0	2	3
	33%	0%	67%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

**( $\chi^2 = 3.815a$ ,  $p = .432$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)**

To manage facilities at the workshop, teachers have to supervise students during their practical works. The researcher therefore examined the extent to which respondents agree or disagree to the statement and also find out if there exist an association between educational level of respondents and their extent of agreement to supervise student's practical learning is presented in Table 4.13. The results shows that half 50% of the respondents who strongly agreed to the assertion were holders of technical school education, holders of university education forms 49% of the respondents that agreed to the assertion. Again 33% of technical school education also disagreed to the facts that teachers supervise students during their practical works. However, a Pearson's Chi Square analysis of ( $X^2 = 3.815$ ,  $P = .432$ ) suggest no statistical relationship between the two variables.

**Table 4.14 Safety rules are enforced in the workshop \* educational level**

Safety rules are enforced in the workshop	Educational level			Total
	Technical	Polytechnic	University	
Strongly agree	40	7	28	75
	53%	9%	37%	100%
Agree	8	5	25	38
	21%	13%	66%	100%
Disagree	5	0	2	7
	71%	0%	29%	100%
Total	53	12	55	120
%	44%	10%	46%	100%

( $\chi^2 = 13.253a$ ,  $p = .010$ ) Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey 2014)

Respondents were required to indicate their level of agreement or disagreement on the notion that enforcing safety rules in the workshop is a role teacher's play in managing workshop facilities. Analyses of the responses revealed that majority 53% of respondents who strongly agree to the notion were holders of technical school certificate, 66% and 13% of the respondents who agreed to the notion were holders of university education and Polytechnic education respectively. A statistical significant association was found between the responses regarding educational level of respondents and enforcement of safety rules in the workshop. (Pearson's Chi Square = 13.253a,  $p = .010$ ).

**Table 4.15 Correlation Matrix of respondent's demographics and their role in managing workshops**

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000											
2	.849**	1.000										
3	.055	.068	1.000									
4	-.093	-.109	.514**	1.000								
5	-.283**	-.333**	.498	.122	1.000							
6	-.016	-.051	.269**	.462**	.143	1.000						
7	-.224*	-.289**	.175	.203*	.176	.277**	1.000					
8	-.371**	-.379**	.222*	.161	.282**	.124	.373**	1.000				
9	-.021	-.124	.357**	.442**	.088	.299**	.141	.196*	1.000			
10	-.136	-.196*	.138	.125	.350**	.162	.312**	.382**	.100	1.000		
11	-.075	-.113	.175	.028	.185*	.122	.280**	.341**	.151	.247**	1.000	
12	-.142	-.202*	.118	.055	.256**	.004	.223*	.412**	.120	.218*	.539**	1.00
M	2.04	2.02	1.61	1.62	1.76	1.83	2.04	2.08	2.18	2.25	2.56	2.57
SD	.911	.953	.759	.701	.747	.795	.703	.747	.756	.641	.547	.604

N= 120 \* Correlation is significant at the 0.05 level (2-tailed). \*\*Correlation is significant at the

0.01 level (2-tailed). Response scale: strongly agree = 3, agree = 2 disagree = 1 (source: field survey

2014) M = mean values, SD = standard deviation

1. Age
2. Educational background
3. Use of advanced computer aided equipment during teaching
4. Films of good maintenance culture are shown in school
5. Teacher have easily access to internet
6. Maintenance week is annually celebrated in the school

7. Teacher writes reports on malfunction or faulty equipment
8. Check stores and controls stock at the end of the term
9. Regular field trips are organised for students
10. Teachers develop programmes that are practiced by students
11. Supervises students during practical
12. Safety rules are enforced in the workshop

Table 4.15 is the association between the basic demographic information of respondents (age and level of education) and the role of the teacher in workshop management. The role played by teachers in managing workshop facilities was measured on a three point likert scale. A strong positive significant association was found between the age of the teachers and their level of education attained ( $r = 0.849$ ,  $P < 0.05$ ). Again Table 4.15 revealed that there were weak negative statistical significant association between the age of teachers and teachers easily access to internet ( $r = -0.283$ ,  $P < 0.05$ ). The association between teacher's checks on stores and controls stock at the end of the term and their age was strong but negative significant. Further investigation revealed that there were no statistically significant association between the age of teachers and the other entire role played in managing workshop facilities. However, strong and positive statistically association was established between teachers ability to show a film of good maintenance culture ( $r = 0.514$ ,  $P < 0.05$ ), organisation of regular field trips for students ( $r = 0.357$ ,  $P < 0.05$ ) and teachers use of advanced computer aided equipment during teaching. Moreover, teachers ability to show a film of good maintenance culture to students also established strong positive statistically significant association with celebration of maintenance week annually in school ( $r = 0.462$ ,  $P < 0.05$ ) and organisation of regular field trips ( $r = 0.442$ ,  $P < 0.05$ ) as role played in managing

workshop facilities as indicated in Table 4.15, where correlation is significant at 0.05 and 0.01 level (2-tailed)



## CHAPTER FIVE

### DISCUSSION OF FINDINGS

#### 5.0 Introduction

The study was undertaken to investigate into the management of workshops in Technical Schools in the Western Region. This became necessary when the researcher noticed the deplorable state of workshops and its facilities in technical schools within the Western Region of Ghana. It is no longer doubtful that several factors accounts for this stage in the technical schools. However, the prospect of finding answers to how these workshops are managed cannot be over emphasized.

#### 5.1 Demographic Data of Respondents

Collectively, 120 respondents were surveyed for the study into the management of workshops in technical schools in Western Region. Gender distribution revealed that 88% of these were male while and female constitutes 12%. This gave a clear indication that, in technical institutions males out-weigh their female counterparts. This again brings to light that majority of the respondents were those of male opinion consisting of a 7:1 male-female ratio, also age distribution indicates that, majority of the respondent were 35 years and above. Even though the ages between 25-34 years were less than one-fifth of the total, it was a sizeable figure that cannot be over emphasized.

This proved that respondents were those older than 35 years, people who were really on the field and know what exactly is happening on the ground.



## 5.2 State of Workshop Facilities in Technical Schools

Technical Schools are mandated to train and produce individuals who can operate technical equipment and also prepare successful students for successful employment in the labour market, (Finch & Cronkilton, 1999).

The state of facilities and equipments in the workshops of technical schools were investigated. The outcome revealed that, most of the facilities and equipments in the schools were woefully inadequate. Table 4.2 indicates that, provision of platform for materials and finished projects are inadequate, finished projects are therefore left on the bare floor making it difficult to distinguish between raw materials and finished projects, it implies that, raw materials and finished projects were put together on the same platform, therefore one would have to go through a whole lot before picking an item from the workshop.

Furthermore, planning and drawing space for at least two students were inadequate. This implies that, enough space for students to plan and draw their projects as expected were difficult to maintain, because, the workshops were originally designed and built for small students population but, the growth in student population in recent times has brought more pressure on the facilities in the workshops confirming Tower (2000) and Asilokum (2004) findings. The workshops were congested that enough space for creating congenial atmosphere for teachers and students to enhance effective teaching and learning cannot be assured.

Table 4.2 further revealed that the facilities such as fire extinguishers, air-conditions, fans and illuminations were also inadequate. Most of the workshops had fire extinguishers placed at vantage points in the workshop, but were hardly checked and tested periodically for its viability. In case of a fire outbreak, these fire extinguishers

cannot be used for fighting the fire before the National Fire Service be called in to assist. Most of the workshops had no air conditions, the available ones were placed at the offices of the instructor, even that, most of them were not functioning or not in a good state. The state of fans cannot be left out. They have not been maintained nor replaced since the workshops were built because of the bureaucracy involved and lack of fund available.

Inadequate supply of standard work benches, first aid facilities and other teaching aids meant to enhance greater understanding and appreciation of the learning experiences as revealed in Table 4.2 is likely to have a negative effect on skill acquisition by students passing through the program. Anyakoha (1992), in support of the findings noted that the development of useful skills can be reinforced by the appropriate selection and use of learning facilities and resources. These facilities comprises of workshop structures, working materials, teaching materials, workshop tools and equipment. In the same vein Uzoagulu (1992) warned that, where equipment and tools are not functional or adequately provided, technical training programmes will suffer and will lead to the production of highly unskilled personnel who are unemployable and unproductive. Therefore, inadequate workshop facilities in technical schools programmes deterred skill acquisition. Only a few workshop facilities in the technical schools were adequate according to the findings.

This means that there is serious shortage of facilities in technical schools workshops, with the three categories of respondents attesting to it. This confirms the study conducted by Aina (1999) that, some schools lack not only workshops and laboratories, but also where such are provided; they are ill-equipped and lack the basic

tools and equipment for instruction. This implies that, facilities need to be provided in the technical schools workshops for efficient response to society needs.

### **5.3 Ways of Funding Workshop Facilities**

With reference to strategies toward acquiring adequate facilities in technical school workshops, findings on Table 4.3 revealed that the private sector should be encouraged to initiate and participate in the provision of facilities, linkages between schools and the private sector should be strengthened and that there should be alliance between schools and interest groups. This result is in consonance with observation made by Yakubu (2005) that financing of institutions is becoming prohibitive and a heavy burden for government to bear alone. He urged that school heads to explore other sources of funds to enable them generate enough to adequately equip institutions for effective teaching and learning. Edache (2001) stressed the need for diversifying the sources of financing technical education and advised that foreign assistances should be sought by the governments where possible for rehabilitation of technical workshops in our schools.

On the international perspective, various mechanisms to fund vocational education and training in South Africa are being developed; including the Medium Term Expenditure Frameworks (MTEFs), special purpose funding, program based funding and public-private partnership funding (Bester, 2004) some of these strategies are in line with findings of this study. Industries are supposed to be partners in progress to technical schools as products from such institutions are employed by them, the findings show that industries should be sought through cooperation to assist schools. This is very important because by so doing products (students) would be fully prepared to take

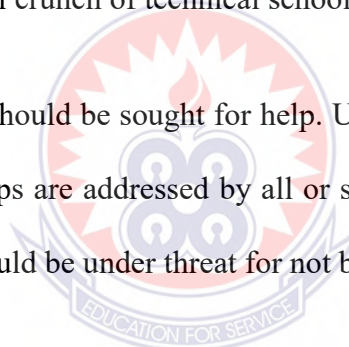
appointment in the industry. Emphasizing the same point, although using a university as a case study, Gore & Leonard (2007) maintained that training tomorrow's leaders require a collaborative effort between industry and the university. Higher education must build collaborative partnerships, improve all forms of scholarship and provide opportunities for students to contribute to the common good (Boyer, 1990).

This study also revealed that government should solicit support from Non Government Organizations (NGOs), Parent Teacher Association (PTA) and Community Based Organizations (CBOs) for assistance. This strategy for acquiring adequate facilities is in agreement with the works of Prew & Idris (2009). The study conducted in South Africa by Prew (2009) also revealed that the community should be involved in determining the development priorities in the school, supplying voluntary and paid services to the school, help the school raise and manage funds and sitting on and running some committees. In the same vein Umar et al (2009), suggested that Non Government Organizations (NGOs), Community Based Organizations (CBOs) and Parent Teacher Associations (PTA) should be made to play a vibrant role in moving technical education forward. Farauta (1999), identified the projects undertaken by the Parent Teachers Association to include the provision of generating plants, laboratory equipment and water tanks. In his study, Uzokwe (2000), concluded that parents should try to give government moral and financial support toward technical education programs to enable it to achieve its aims and objectives.

Respondents for this study attached great importance to the statement in Table 4.3 that, fifteen percent of Education Trust Fund (ETF) should be used for the procurement of workshop facilities. Stressing the role of ETF in education Bajah (2001), averred that the ETF's real goal should be to support educational dogmas that will produce

technically skilled, empowered generation of women and men for the 21<sup>st</sup> century. The objective of ETF is to identify areas of weaknesses in the educational sector and intervene with funding to enhance educational facilities, infrastructure development, and promote creative and innovative approaches to educational learning services; a percentage of Value Added Tax (VAT) should be utilized for workshop facilities. Umar (2005), stressed that funds realized from VAT should be used for financing technical schools and that workshops should be used profitably for private jobs during weekends and public holidays not for personal gains. This confirms the work of Abdullahi (1998), he observed that where school workshops and laboratories are used profitably during evenings, weekends and public holidays, the skills of students are upgraded and the financial crunch of technical schools is combated.

The District Assemblies should be sought for help. Unless the shortages of facilities in technical school workshops are addressed by all or some of these strategies, the goals of technical education would be under threat for not being realized



#### **5.4 Role Teachers play in Managing Workshop Facilities**

Examining the role play by teachers in managing workshop facilities revealed some factors that account for the inadequacy and deplorable state of the facilities in technical school workshops despite the effort made by them,

Table 4.4 shows how teachers enforce safety rules and regulations that govern the use of the workshop, for students to adhere to, the workshop should be tidy after work, moving parts of machine are constantly lubricated to reduce friction, safety shoes and helmet are worn when working in the workshop. This has helped in the maintenance of the facilities and ensured safety at all time.

Again teachers devote their time in supervising students during practical periods so that they cautiously practice all theories learnt in the classroom, and the strict supervision by teachers during practical periods however has helped to maintain order and reduced accidents that were easily avoidable. This was because the students were directed as to what to do.

Furthermore, in managing workshop facilities programs were developed for students to practice, this also helped the teacher's in managing the workshop facilities because there were laid down procedures through which the students were to follow, this prevents students from doing their own thing whenever they were to work in the workshops.

Moreover, the study revealed that regular field trips were organized for students as a role played by teachers in managing the school workshops. These regular field trips helped the students and even the teachers on how to maintain and manage the facilities at their workshop. This was because they were introduced to some real situation and see for real the importance of managing such facilities. The field trip also gave an insight into the real world experiences of which the students would find themselves after school.

Again the teachers ensured that, they checked the stores and also control the stock at the end of every term to know which machine, tool, materials and parts were available, because they give indications of the quantity of items in stock and what would be needed for the next term.

The relationship in Table 4.4 further revealed that, despite the numerous roles played by teachers in managing the workshop facilities, the celebration of maintenance week

in the school were not properly organized. The school communities therefore did not see the need for encouraging good maintenance culture in their environment.

Teachers hardly have access to the Internet when at school, so they lacked the requisite modern trend on which their foreign counterparts focused on. They only rely on the traditional maintenance routine which is outmoded, though teachers write reports on malfunction and faulty equipment, they were not serviced in time or hardly receive attention. This also contributes to the deplorable state of the workshops facilities.

Furthermore, as a role played to manage the facilities, teachers' show films of good maintenance culture in the schools. This was to sensitize and create awareness for the need to always execute maintenance schedules in the workshops for efficiency.

### **5.5 Relationship between Teachers educational level and the role play in managing workshop facilities**

An investigation into the association between the educational level of the teachers and their role played in managing workshop facilities, revealed that even though teachers attested to the fact that using advanced computer aided equipment during teaching was a major role played in managing facilities at the workshop, however, there were no statistically significant association between the level of education attained by teachers. This therefore suggested that the level of education attained by the teachers has no influence on their ability to use advanced computer aided equipment during teaching.

Showing a film of good maintenance culture to students in schools was a role played by teachers to manage workshop facilities. Table 4.6 revealed no statistically



significant association between the educational level of the teachers and their ability to show a film of good maintenance in school. The level of education attained by teachers either higher or lower has no influence on that teacher to show a film of good maintenance to manage the facilities at the school workshops.

Again, to manage workshop facilities in technical schools, teachers played the role of celebrating maintenance week annually in school. Investigating the association between the level of education attained by the teachers and the celebration of the maintenance week revealed in (Table 4.7) that, there was a strong statistically association between the two variables. This further suggested that a teacher's ability to celebrate maintenance week annually in school is being influenced by his level of education. As teacher's level of education increases so is their ability to play a role of celebrating maintenance week annually to manage workshop facilities. For instance, teachers with university education would properly plan the celebration of maintenance week to manage workshop facilities than diploma teachers.

The study again revealed a strong statistical significant association between the level of education attained by teachers and their ability to develop programmes that are practiced by students. This means that teacher's ability to develop programmes for students to practice in the management of the facilities is being influenced by the educational level of the teacher. Teachers with higher education would find it easy to develop programmes that would be practiced by their students in the management of the facilities than teachers with lower level of education. For instance teachers with Masters Degrees would prefer to manage facilities at the workshops by developing a programme for the students to practice than a certificate 'A' teacher. This further



implies that as the educational level attainment by the teacher increases, the desire for developing effective programmes to be practiced also increases.



## CHAPTER SIX

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 6.0 Introduction

This chapter deals with the summary of the findings, conclusion and recommendations of the study.

The ultimate goal of the study is to find ways of improving upon the existing Technical Schools workshops in the country.

#### 6.1 Summary of findings

The principal aspiration of this scrutiny was to investigate into the management of workshops in technical schools in the Western Region and suggest appropriate measures to arrest the situation of inadequacy that hinders the progress of technical education in the country.

Demographic of respondents revealed that the majority were thirty-five years and above, 88% of them were males and 12% females who were really on the field and knows exactly what is happening on the ground.

Again on the adequacy of the facilities, most of them were woefully inadequate, they lack space for finished projects, planning and drawing, workshops very congested, fire extinguishers hardly checked and tested, ceiling fans not in good condition and illuminations level very poor. The workshops were ill-equipped and lack basic tool and equipments for instruction which deterred skill acquisition and the production of highly skilled personnel who can respond to the needs of the society.

Also on the ways of funding workshop facilities, it was observed that the private sector should be encouraged to initiate and participate in the provision of facilities, linkage between school and the private sector should also be strengthened, also to form alliance with interest groups like industries, NGO's, the PTA, and Community Based Organizations. Fifteen percent of Education Trust Fund (ETF) and a percentage of the Value Added Tax (VAT) should be used for the procurement of workshop facilities, and the District Assemblies should be contacted for assistance.

Furthermore, the role of the teacher was not left out, it was observed that, in spite of the numerous roles played by the teachers in managing workshop facilities, the celebration of maintenance week in the schools were not properly organized. The school communities therefore did not see the need to encourage good maintenance culture, Teachers hardly have access to the Internet, lacked the requisite modern trends on which their foreign counterparts are focusing on, but only rely on the traditional maintenance routine which is outmoded.

Even though teachers write reports on malfunction and faulty equipments, they were not serviced in time or hardly received attention, film of good maintenance culture are not shown in schools to sensitize and create awareness for the need to always execute maintenance schedule at the workshop efficiency and effectiveness.

. Teachers hardly use advanced computer aided equipment during teaching simply because, they are not available.

Finally, an investigation into the association between the educational level of the instructors and their role play in the management of workshop facilities revealed that, there were statistically significant association between the celebration of maintenance week annually in the schools which is being influenced by the teacher's level of

education, and a strong statistically significant association between the level of education attained by teachers increases the ability to develop programmes that are to be practiced by students.

Teachers with higher education would find it easy to develop programmes that could be practiced by their students in the management of the facilities, than those with lower level of education. For instance teachers with Masters Degrees would prefer to manage facilities at a workshop by developing programmes for the students to practice than a certificate 'A' teacher. This further implied that, as the educational level attainment by teacher's increases then the need to develop effective programmes for students to practice, but there were no statistically significant association between the level of education attained by the teachers and the other roles they play in managing the facilities

## **6.2 Conclusion**

The desire to produce competent graduates of technical schools can be achieved when the facilities in the workshops are relevant and adequate for the programmes as demanded by the curriculum. This study has shown that, facilities in technical school workshops are inadequate, identified some relevant strategies toward acquiring adequate facilities and the role teachers can play to improve upon the management of technical school workshops. Hence, the call for immediate implementation of these strategies in order to meet the goals of technical education as usually identified in the National Policy on Education of every Nation.

### 6.3 Recommendation

Based on the above revelations from the findings of this study, the following recommendations are necessary in order to manage the facilities in technical school workshop:

- Female enrolment into technical schools must be encouraged
- The private sector should be encouraged to initiate and participate in the provision of facilities
- Linkages between schools and the private sector should be strengthened to ensure the appropriate interface with the world of work. This could be achieved through constant invitation of private sectors to participate in school programs leading to proper understanding and integration.
- Industries should be sought as partners in progress to assist in provision of facilities. This could be achieved through interactions as technical colleges provide industry with a pool of potential employees.
- Non Governmental Organizations (NGOs), Parent Teacher Association (PTA), and Community Based Organizations (CBOs) should be sought for support in supplying relevant facilities to workshops as obtained in some nations.
- A specific percentage of Income tax generated annually by Government should be utilized for the provision of workshop facilities in technical schools.
- Government should provide adequate facilities to technical school workshops using current strategies identified to ensure acquisition of relevant skills, knowledge and experience that are relevant to the growth of the country.
- Maintenance week should be celebrated annually to serve as a reminder and the need for maintaining the environment. .

- Easy internet access should be made available for teachers to explore new methods of solving problems.
- Video recordings of good maintenance culture must be shown in schools so that students can see the importance of applying maintenance culture to their immediate environment.



## REFERENCES

- Abdullahi, S. M. (1998). *Innovative Approaches for Funding Technology Education Programs in Nigeria Schools*. In A. W. Ajetunmobi, T. A. G. Oladimeji & K. A. Salami (Eds), *Technology Education and the Realization of vision 2010*. Annual NATT conference-Minna. 14<sup>th</sup> – 17<sup>th</sup> October.
- Abdullahi, S. M. (2003). Evaluation of Vocational Technical Training Programs in Northern Nigeria Prisons. *Journal of League of Researchers in Nigeria (JOLORN)*. 8 (1), 146-153.
- Aina, O. (1999). *Technical Education in Nigeria – A Bridge to the future, fifth National Biennial Convention of the Auchi Polytechnic*. 4<sup>th</sup>-7<sup>th</sup> October.
- Aina, O. (2000). *Technical and Vocational Education in Nigeria: Vision and action; Blue print and master plan – Federal Ministry of Education (2001 – 2010)*.
- Anamuah-Mensah J. O. *New Educational Reforms*. Retrieved from; [www.uew.edu.gh/default/files/the\\_educational\\_reforms](http://www.uew.edu.gh/default/files/the_educational_reforms). Date. 23/8/13.
- Anyakoha, E. U. (1992). Development and utilization of facilities for home economic education program in Nigerian schools and colleges for manpower development, *Nigerian Vocational Journal* 2(1), 16 – 24
- Asilokun, B. A. (2004). *Development and Managing Schools Workshop towards achieving Sustainable NEEDS*. In G. N. Nneji, M. A. Ogunyemi, F. O. N. Onyeukwu, M. Ukponson, S. O. Agbato, E. A. Nnenji (Eds.), *Technology Education as an impetus for sustainable NEEDS*. 17<sup>th</sup> Annual NATT conference – Abuja. 94 – 97.
- Atsumbe, B. N. (2002). Mechanisms for Improving Manpower Production in Vocational and Technical Education. *Akoka Journal of Education*. 1 (2) 165 – 178

- Babbie, E. (1998). *The Practice of Social Research*, (8<sup>th</sup> Ed.). Belmont, C A: Wadsworth Publishing Company.
- Bajah, S. T. (2001). *Stakeholders at Home and Abroad*. In O. Nnoli & I. Sulaiman (Eds). *Reassessing the Future of Education in Nigeria*. Abuja: ETF Publication.
- Bester, G. (2004). *Further Education and Training in South Africa*. In L. Moran & G. Rumble (Eds). *Vocational Education and Training through Open and Distance Learning*. Volume 5. London: Routledge Falmer.
- Boyer, E. (1990). *Scholarship Reconsidered: Priorities of the Professoriate, the Carnegie Foundation for the Advancement of Teaching*. New Jersey: Princeton University Press.
- Bybee, R. & Loucks-Horsely, S. (2000). Standard as Catalyst for Change in Technology Education. *The Technology Teacher*, 59 (5), 14-17
- Creaswell, J. W. (2012). *Research design: qualitative and Quantitative Approaches*. United Kingdom: SAGE.
- Diamond, I. (2006). *Teaching and Learning Research Programme*. Retrieved from. [www.tlrp.org](http://www.tlrp.org). Date. 24/8/13.
- Edache, E. (2001). *Sources of Revenue for Technical Institutions in Nigeria*. A Paper Presented at the National Conference organized by COEASU FCE Pankshin on 2<sup>nd</sup> -5<sup>TH</sup> May.
- Farauta, K. G. (1999). A Survey of the Role of Parent Teachers Association in the Effective Implementation of Pre-vocational Courses Post Primary institutions of Numan Metropolis, Adamawa State. *Sabondale Journal of Technical Education*, 2(1), 31- 34..
- Federal Government of Nigeria. (2004). *National policy on education* (4<sup>th</sup> ed). Lagos: NERDC press.



- Finch, C. R. & Crunkilton, J. R. (1999). *Curriculum Development in Vocational and Technical Education: Planning, Content and Implementation*, (5<sup>th</sup> Ed.). Boston: Allyn and Bacon.
- Groover, M. P. (2011). *Principles of Modern Manufacturing*, (4<sup>th</sup> Ed ). John Wiley & Sons Pte. Ltd, Asia.
- Gore, D. W., & Leonard, J. (2007). *Industry and University Collaboration for Training tomorrow's Leader*. In the past, the present, the future. 40<sup>th</sup> Annual Convention of National Association of Industrial Technology (NAIT). Held from 23<sup>rd</sup> – 27<sup>th</sup> October, at Panama City beach, Florida. Retrieved June 6<sup>th</sup>, 2009 from <http://scholar.lib.vt.edu/ejournals/jte> .
- Microsoft ® Encarta ® 2009. © 1993-2008 Microsoft Corporation, Prehistoric times
- Mkpa, A. M. (2001). *Optimization of Available Teaching and Learning Materials/Facilities*. In O. Nnoli & I. Sulaiman (Eds). *Reassessing the Future of Education in Nigeria*. Abuja: ETF Publication.
- Ndomi, B. M. (2005). Revisiting the Learning Experience of Technical College Farm Machinery Curriculum for Empowerment of Recipients in Nigeria. *Journal of Nigerian Association of Teachers of Technology (JONATT)*. 5 (1) 88 - 94.
- Nnoli, O. (2001). Prospect for the Future of Education in Nigeria. In O. Nnoli & I. Sulaiman (Eds). *Reassessing the Future of Education in Nigeria*. Abuja: ETF Publication.
- Penny, D. & Fox, B. (1997). 'At the Wheel or Back Seat Dinners?: The Role of Teachers in Contemporary Curriculum Reform. *Queens land Journal of Educational Research*, 13 (2), 14–27.
- Prew, M. (2009). Community Involvement in School Development: Modifying School Improvement Concept to the needs of South African Township Schools.

- Journal of Educational Management, Administration and Leadership*. 37 (6) 824 - 846. Retrieved October 23<sup>rd</sup>, 2009 from <http://ema.sagepub.com>.
- Puyate, S. T. (2002). Survey of Vocational Education Facilities in Government Technical Colleges in Rivers State. *Journal of Nigerian Association of Teachers of Technology (JONATT)*. 4 (1), 175 – 181.
- Towe, P. E. O. (2000). *An In-depth review and assessment of the present state and focus of Technical and Vocational Education in Nigeria*. A paper presented at National Seminar on TVE in Nigeria; Vision and Action 31<sup>st</sup> October – 2<sup>nd</sup> November. National Center for Women Development, Abuja.
- Umar, I. Y. (2005). Mechanism for Improving the Funding of Vocational Centers and Technical Colleges in a Democracy. *Journal of Nigerian Association of Teachers of Technology (JONATT)*. 5 (1) 113 – 118.
- Umar, I. Y., Audu, R. & Idris, A. M. (2009). Public Private Sector Participation in Education: A Panacea for Provision of facilities in Technical Colleges in Nigeria. *Journal of League of Researchers in Nigeria (JOLORN)*. 10 (1) 27 – 32.
- Uzoagulu, A. E. (1992). *Towards an Effective Equipment Management (EEM) in Schools for Economic and Technological Self-reliance*. A paper presented at the 7<sup>th</sup> annual conference of the NVA held at FCE (T), Umunze. November 25<sup>th</sup> – 28<sup>th</sup>.
- Uzokwe, B. (2000). *Vocational and Technical Education in Nigeria: Problems and Prospects Crisis in Accomplishing Educational Objectives in Nigeria*. Jos: WAIS printing Press.

Whiting, L.S. (2008), *Semi-structured interviews: guidance for novice researchers.*

Nursing Standard. 22, 23, 35-40. Date of acceptance: November 2, 2007.

Yakubu, N. A. (2005). *A Goodwill Message Presented at the National Workshop on Revamping Technical Education in Nigeria organized for Teachers of Technical Colleges and C. O. E. (Tech) by ETF at Chelsea Hotel Abuja. June 22<sup>nd</sup> – 23<sup>rd</sup>.*



## APPENDIX A

Dear Sir/Madam,

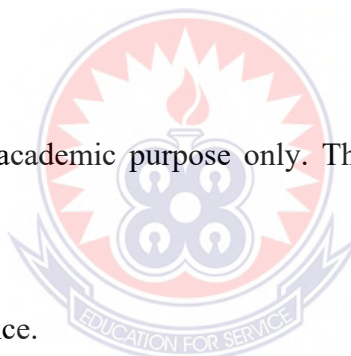
I am conducting an investigation into the management of technical school workshops in the western region, to find out how adequate the facilities of the technical school workshops are, the effective way of funding and the role of a teacher in workshop management..

This questionnaire is prepared to seek information from technical schools in the western region on the management of technical schools workshops

The ultimate goal of the study is to find ways of improving upon the existing one in the western region

The study is mainly for academic purpose only. Therefore, responses given will be treated confidentially.

Thank you for the assistance.



Please, tick [] the appropriate box where applicable.

### BIO-DATA

A. Gender.

1. [] male
2. [] female

B. Age.

1. [] 18-24
2. [] 25-34

3. [ ] 35 and above

D. Educational background?

1. [ ] technical.

2. [ ] polytechnic

3. [ ] university

E. What is your status in the school?

1. Student

2. Instructor/Workshop assistant

3. Principal/Vice principal/ Administrator



## APPENDIX B

The study is mainly for academic purpose only. Therefore, responses given will be treated confidentially.

### Questionnaires on how adequate are the facilities in technical schools.

. Please, tick [] the appropriate box where applicable.

No	Item	Very Adequate	Adequate	Inadequate
1	Workshop space for 20 students to work at the same time			
2	Electricity is supplied from the national grid			
3	Location of at least one lavatory at one end of the workshop			
4	Workshops activities are affected by interrupted energy supply.			
5	Space for planning and drawing for at least twelve (12) students			
6	Locker space for at least twenty (20) students.			
7	Every workshop has four (4) fire extinguishers that are tested periodically.			
8	Air condition, ceiling fan and illumination levels are good			
9	The workshops are provided with standard work benches			
10	Platform for materials and finished projects are provided			

### APPENDIX C

The study is mainly for academic purpose only. Therefore, responses given will be treated confidentially.

#### Questionnaire on the effective ways of funding the facilities in technical schools

Please, tick [] the appropriate box where applicable.

No	Item	Strongly Agreed	Agreed	Disagreed
1	Linkage between private sector and schools should be encouraged			
2	Government should solicit support from NGOs and PTAs for assistance			
3	Workshops should be used profitably for private job during weekend and holidays			
4	Parents should be taxed annually and money realized used to provide facilities in the workshops			
5	Industry should be encouraged to assist schools.			
6	A percentage of money realized from VAT should be used for acquiring workshop facilities.			
7	Community based organizations (CBOs) should be approached for help.			
8	Principals should write to concern authorities for assistance			
9	15% of Education trust fund (ETF) should be used for procurement of workshop facilities			
10	District Assembly should be approached for help.			

## APPENDIX D

The study is mainly for academic purpose only. Therefore, responses given will be treated confidentially.

### Questionnaires on the role of the teacher in workshop management

Please, tick [] the appropriate box where applicable.

No	Item	Strongly agreed	Agreed	Disagreed
1	Teacher uses advanced computer aided equipment during teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Films of good maintenance culture are shown in the school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Maintenance week is celebrated annually in the school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Teacher writes report on malfunction or faulty equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Teachers develop programmes that are practice by the students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Regular field trips are organized for students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Teachers have access to the internet easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Checks stores and controls stock at the end of every term.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Supervise students during practical period.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Safety rules are enforced in the workshop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>