A Framework for Training and Development of Construction Craft Skills in Nigeria

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ABSTRACT

The Nigerian construction sector presently accounts for about 1.4% of the nation's GDP, even though its contribution to total GDP seems to have remained extremely low; the sector is yet to realise its full potential. The sector is expanding strongly with a growth of 10% per year and is supported by multiple real estate projects and by the modernisation and development of infrastructures which offer new opportunities for the construction sector.

The nation's approach to the training and development of construction related craftspeople, however, has been general rather than specific; and the various reforms on technical, vocational education and training (TVET) have not succeeded in tackling the perennial craft skills shortage crisis in the sector.

This research project focused on formulating and validating a framework for achieving effectiveness and sustainability in the training and development of construction craft in the Nigerian construction sector, with emphasis on addressing the factors militating against securing and sustaining the interest of the youth population in acquiring construction related crafts skills.

In order to collect a robust data to adequately address the goal of the study, secondary data were collected through an in-depth review of related literature. Quantitative data were elicited through a questionnaire survey while the gathering of qualitative data adopted the semi structured interview and document analysis approaches. This mixed-method approach generated data that formed the basis for the development of a unique and novel best practice framework for the training and development of construction related crafts people in the Nigerian construction industry. The framework, which was validated by experienced industry-based professionals and academics; was adjudged capable of ensuring effectiveness and enhancing sustainability in craft skills training and development in the nation's construction sector.

The study concluded that in order to achieve sustainability and effectiveness, crafts skills training and development in the nation's construction sector must be accorded a specific attention. The establishment of a regulatory organ vested with the responsibilities for implementing and regulating skills training and development in the construction sector is imperative. Apart from facilitating career progression of crafts people and adequately addressing the factors inhibiting the interest of prospective trainees; effective guidance and counselling systems must be provided for the purpose of sensitizing the youths and other potential trainees on the importance and economic prospects inherent in pursuing construction related craft careers.

The Construction Craft Skills Training and Development (CCSTD) Framework is a major contribution to knowledge in this area. It is recommended for adoption by the government, construction sector, professional bodies, training providers and other related stakeholders; as a guide on skills training and development matters in the Nigerian construction sector.

DEDICATION

- *This Research Project is dedicated to:*

*The **Glory** and **Honour** of*

THE LIVING AND IMMUTABLE GOD.

The Author and Preserver of LIFE

And

The Inspiration of the Aspiration

For this

Research Project from Inception unto completion.

INSPIRATION

A good end needs a good start

Tell me and I will forget
Show me and I may remember
Involve me and I will understand

Confucius 450 BC

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LIST OF ABBREVIATIONS

ACIPBs	Allied Construction Industry Professional Bodies
ACPBRCs	Allied Construction Professional Bodies Regulatory Councils
ANTA	Australian National Training Authority
ANTC	Advanced National Technical Certificate
APBN	Association of Professional Bodies in Nigeria
APSEB	Apprenticeship Scheme Examination Board
ARCON	Architects Registration Council of Nigeria
ATS	Apprenticeship Training Scheme
AU	African Union
AVC	Advanced Vocational Certificate
BAA	Bureau d'Appui aux Artisans
BVC	Basic Vocational Certificate
CAC	Central Apprenticeship Council
CATS	Career Aptitude Testing Schemes
CAP	Capacity Acquisition Programme
CBOs	Community Based Organizations
CBT	Competency Based Training
CCCCTs	Construction Crafts Careers Counselling Teams
CCST	Construction Crafts Skills Training
CDP	Credit Delivery Programme
CCSTCs	Construction Crafts Skills Training Centres
CCSTS	Construction Crafts Skills Training Scheme.
CCSTDF	Construction Crafts Skills Training and Development Framework
CCST/D	Construction Crafts Skills Training and Development
CCTRCs	Construction Crafts Trainees Recruitment Committees
CEPD	Council for Economic Planning and Development
CETA	Construction Education and Training Authority
CICSEB	Construction Industry Crafts Skills Examination Board
CGLI	City and Guilds of London Institute
CIPBs	Construction Industry Professional Bodies
CIPS	Construction Industry Private Sectors
CITA	Construction Industry Training Authority

CITP	Construction Industry Training Policy
CIVEEB	Construction Industry Vocational Education Examination Board
CORBON	Council of Registered Builders of Nigeria
COREN	Council of Registered Engineers of Nigeria
COTVET	Council for Technical and Vocational Education and Training
CPD	Continuous Professional Development
CSCSTD	Construction Sector Crafts Skills Training and Development
CSCSTS	Construction Sector Crafts Skills Training Scheme
CSs	Construction Sites
CST	Crafts Skills Training
CSTFW	Craft-Skills Training Framework
CSWEA	Construction Site Work Experience Attachment
CTS	Craftsmen Training Scheme
CTUs	Crafts Trade Unions
CYEE	Central Youth Employment Executive
DTVE	Directorate of Technical and Vocational Education
ETF	Education Trust Fund
ETQA	Education and Training Quality Assurance
EVTA	Employment and Vocational Training Administration
FG	Federal Government
FGN	Federal Government of Nigeria
FGTCs	Federal Government Technical Colleges
FHE	Further and Higher Education
FIRS	Federal Inland Revenue Service
FME	Federal Ministry of Education
FMLP	Federal Ministry of Labour and Productivity
FOBACEC	Federation of Building and Civil Engineering Contractors
FOCI	Federation of Construction Industry of Nigeria
GF	General Foreman
IEIs	Innovation Enterprise Institutions
ITBs	Industry training boards
ITF	Industrial Training Fund
ITIs	Industrial Training Institutes
JSSC	Junior Secondary School Certificate

JSS	Junior Secondary School
KSCs	Knowledge, Skills and Competencies
LEDs	Local Education Departments
LG	Local Government
LGCAs	Local Government Council Areas
LGEBs	Local Government Education Boards
MAP	Mandatory Attachment Programme
MCIOB	Member, Chartered Institute of Building
MDGs	Millennium Development Goals
MOE	Ministry of Education
MOE & HRD	Ministry of education and human resources development
MOL	Ministry of Labour
MPC	Manpower Planning Committee
NABTEB	National Business and Technical Examination Board
NAOS	National Open Apprenticeship Scheme
NAPEB	National Poverty Eradication Programme
NATC	National Joint Apprenticeship and Training Council
NAVC	National Advanced Vocational Certificate
NBC	National Business Certificate
NBTE	National Board for Technical Education
NBVC	National Basic Vocational Certificate
NCATB	National Construction Apprenticeship Training Board
NCERD	National Council on Educational Research and Development
NCICSTB	National Construction Industry Crafts Skills Training Board
NCITB	Nigerian Construction Industry Training Board
NCSCSTB	National Construction Sector Crafts Skills Training Board
NCVT	National Councils for Vocational Training
NDE	National Directorate of Employment
NECO	National Examination Council
NEEDS	National Economic Empowerment and Development Strategy
NGOs	Non-Governmental Organisations
NIA	Nigeria Institute of Architects

NIOB	Nigerian Institute of Building
NPCCs	National Professional Consultative Commissions
NPE	National Policy on Education
NQF	National Qualifications Framework
NSE	Nigerian Society of Engineers
NSVET	Nigerian System of Vocational Education and Training
NTC	National Technical Certificate
NVC	National Vocational Certificate
NVD	National Vocational Diploma
NVQs	National Vocational Qualifications
NVQF	National Vocational Qualifications Framework
NVTI's	National Vocational Training Institutes
OCIS	Organised Construction Industry Sector
OECD	Organisation for Economic Cooperation and Development
OICs	Opportunities and Industrialisation Centres
OPS	Organized Private Sector
PAAET	Public Authority for Applied Education and Training
PBSTE	Post Basic Science and Technology Education
PPE	Personal Protective Equipment
PTA	Parents-Teachers Association
PTF	Petroleum Trust Fund
QA	Quality Assurance
QEP	Quality Education Programme
ROGs	Religious Organizations and Groups
RSA	Royal Society of Arts
SACs	Skills Acquisition Centres
SAQA	South African Qualifications Authority
SCVT	State Councils for Vocational Training
SEBs	State Education Boards
SEEDS	State Economic Empowerment and Development Strategy
SETAs	Sector Education and Training Authorities
SG	State Government
SGCs	Social Groups and Clubs
SGEBs	State Government Education Boards

SIWES	Students Industrial Work Experience Scheme
SME	Small and Medium Entrepreneurship
SMLP	State Ministry of Labour and Productivity
SOWS	School on wheels Scheme
SSS	Senior Secondary School
SSSC	Senior Secondary School Certificate
STCs	Science and Technical Colleges
STEPB	Science and Technology Education at Post Basic Level
TAFE	Technical and Further Education
TCs	Technical Colleges
TNA	Training Needs Analysis
TTCS	Trades Testing Certificate Schemes
TVE	Technical/Vocational Education
TVET	Technical/Vocational Education and Training
TVTC	Technical and Vocational Training Corporation
UN	United Nations
UNESCO	United Nations Economic, Scientific and Cultural Organization
VE	Vocational Education
VEEB	Vocational Educational Examination Board
VEIs	Vocational Enterprise Institutions
VET	Vocational Education and Training
VFM	Value for Money
VIEIs	Vocational Innovation and Enterprise Institutes
VST	Vocational Skills Training
VTE	Vocational Training and Education
VTIs	Vocational Training Institutes
WAEC	West African Examination Council
WTWS	Waste to Wealth Scheme
YACs	Youth Associations and Clubs
YES	Youth Empowerment Scheme

GLOSSARY OF TERMS

Apprentice: Someone who agrees to work or be attached to an employer or a more experienced craftsman, for a fixed period of time in order to learn a particular skill or job.

Apprentiship: The job of being an apprentice or the period of time in which a craftsman in training is an apprentice.

Artisan: Someone who does skilled work with his or his hands.

Craftsman: Someone who is very skilled at a particular crafts, e.g. the craft of Blocklaying/Bricklaying, Carpentry/Joinery, Painting/Decorating, Plumbing, Steel/Iron Bending.

Craft: A profession or activity involving the skillful making of decorative or practical objects by hand or manually.

Craftsmanship: A very detailed work that has been done using a lot of skill, so that the result is beautiful. Special skill that someone uses to make something beautiful with his or his hands.

Development: Development as used with respect to craftsmen in this text means the art of growing a craftsman's skill gradually into a more advanced level through further training.

Skill: The ability to do something well, usually gained through training or experience.

TVET: Technical, Vocational Education and Training as defined by UNESCO is the education and training to acquire the practical skills, know-how and understanding necessary for employment in a particular occupation, trade or group of occupation or trades.

Tradesman: Someone who works at a job or trade that involves skill with hands. The British further recognized a tradesman as one who goes to people's houses to sell or deliver goods.

Training: The process of instructing someone or set of people in a skill, work, job or profession.

Trainee: Someone being trained for a job or skill.

Trainer: Someone who trains people for work, a teacher.

Vocation: A particular career, trade or profession.

Vocational: Relating to, providing, or undergoing training in a special skill to be pursued in a trade.

1.0 General Introduction

1.1 Introduction to the Chapter

The main aim of this chapter is to give an overview of the thesis and get the reader acquainted with the goals of the research. The chapter commences with the background of the study, explores the construction industry labour shortages problems and explains the relevance of the study and its significance to the sector. An overview of the history of technical and vocational education (TVET) and the nature of the Nigerian construction sector are highlighted. The focus of the research and its significance are discussed; and the aim and objectives that the research sets out to achieve are highlighted while the questions to which the study seeks to provide answers are outlined. An overview of the methodological approach is also highlighted. The chapter concludes with the explanation of the structure of the thesis which is aimed at providing the chapter guide for the report.

1.2 Background of Study

The issue of workforce shortages is one of the most serious threats to the economic health of many nations around the globe; because lack of skilled labour affects schedules and costs, which in turn could derail or critically delay important projects and jeopardize the economic benefits such projects are expected to generate. (COAA, 2005; Ireland, 2007). The shortage of skilled labour is currently one of the most pressing issues in the construction sector in many nations and is already having serious implications for both business and the economy. (Connor, 2006; McCausland, 2006). The Construction industry, like other industrial development, is experiencing severe and prolonged shortages of 'human power', not just in terms of quantity of workers that puts the world's growing economy at risk - the quality of workforce is also a noticeable factor. (COAA, 2005; Connor, 2006; McCausland, 2006). There has never been such a period in history when the diversification of craft occupations has increased the challenges of skilled workforce training; because as self employment continues to rise, competition is becoming tougher, contract times are shorter, profit margins are smaller and specialization and fragmentation of various trades is increasing; right now, it is very difficult to find key skilled people such as bricklayers, carpenters, plasterers and

electricians. (Dennis, 2007; CPA, 2004; TCE, 2007). The CIOB (2008) Building Survey Report observes that every sector of the construction industry is experiencing some labour shortage. About 40 percent of respondents to various surveys indicated that they have experienced some labour shortage in the recent past. (Brown, 2005; COAA, 2005; McCausland, 2006). As observed by LeClaire (2004), the labour shortage challenge could be hinged on the fact that the percentage of skilled construction workers aged 25 to 34 has declined from 37.5 percent to 28.5 percent between 1988 and 1997 in America; while the percentage of those aged 35 to 44 jumped from 22 percent to 31.5 percent over the same period. The Associated General Contractors of America (AGCA) fixed the average age of construction worker as at 2004 at 47. Magar (2007) opines that although construction companies in India are prepared to spend money to raise their production capacities, the shortage of skilled craftsmen mean that skilful project management and innovative solutions will be necessary to prevent bottlenecks. It is difficult to fathom the words 'skilled labour shortage' in a country of a billion people that is getting younger over time, but the challenge of shortage of trained skilled construction labour is glaring in the industry. Magar (2007) submits that the construction industry remains one of India's largest employers of labour, and realizing the need for skilled vocational staff, the industry has begun collaborating with academic institutions to either train staff for plumbing and masonry type work, or to set up in-house training programs. Sooi (2007) reports that the construction industry is Malaysia is grappling with unfilled positions in the skilled workforce sector, he suggests that an immediate solution would be to import right talents from abroad. CIOB (2008a) in its report on skills shortage survey in the UK construction industry posits that shortage of skills continues to be a challenge for the industry. It predicts that the issue is likely to worsen as the demand for construction increases. The UK construction industry, according to the report, is suffering from a significant skills shortage. ASSA (2008) releases a report stating that Australia's growing labour requirements cannot be met by the native workforce and current levels of immigration. The logical conclusion from the evidence stated in the report is that Australia's future labour requirements will depend on more immigration. Based on the emerging facts as revealed above, it is evident that the construction industry in the various countries is currently facing the challenges of labour shortage. Hence the need to formulate and validate an adequate framework for the education and training of

competent craft skilled workforce to counter or ameliorate the menace in the Nigerian construction sector cannot be over emphasized.

1.2.1 The Nigerian Construction Industry

The Nigerian construction Industry has experienced changes over the years since the oil boom of the early seventies, both in terms of volume and complexity of work. Projects such as construction of roads, buildings, bridges, dams, sewage plants, have been executed on a large scale (Adeniji, 1994). Because most of the technology of construction comprises of both local and imported, there is a need for the training, development and constant supply of indigenous manpower to acquire, use and adapt the available technologies (Nwagwu, 2004; Onjewu, 2005). It has been observed that in most of the less developed countries, the stock of skilled manpower has not been able to match the level of economic activities and development. Such shortages in manpower have been experienced in many urban areas where massive unemployment is accompanied by shortage of relevant skilled craftsmen in the building trades such as bricklayer, blocklayers, carpenters, plasterers (Akindoyeni, 2005; Obiegbu, 2005). In Nigeria in the past, apprentice systems were widespread throughout all occupations; the trainee provided service to the teacher over a period of years and eventually struck out on his own. Consequently, by the 1970s education experts were strategizing on how the system could be integrated into the more formal schooling of the young, but the question remained unresolved. However, over time the interest dwindled and till the present time apprenticeship and vocational training schemes for the construction trades are still completely inadequate in terms of the numbers produced and the quality of skills imparted (Esu and Junaid, 2009). Abdulgafaru (2003) and Awe *et al.* (2009) submit that some difficulties encountered in personnel training and development in the Nigerian construction industry include:

- Mobility of construction personnel within the industry such that skilled men trained by the public organisations are constantly hired by private sector.
- Shortage of indigenous technical personnel.
- Seasonal availability of construction personnel, which affects labour intensive construction in rural and urban areas because it required retraining of manpower

and because it introduces fluctuation in the supply of the main construction resource.

- The big establishment and mostly foreign construction organisations do not identify with the global manpower policy of the countries in which they operate.
- The un-organised nature of trade unions and trade organisations and their attitude to training.
- The general level of education in the country, which can be an important factor in determining impartation and comprehension of skills.
- Migration of skilled workers to richer markets.

It is therefore imperative that efforts are directed at tackling the manpower development challenges and more particular those that relate to training and education of the construction site skilled operatives.

1.2.2 Technical and Vocational Education and Training (TVET) in Nigeria

Onjewu (2005) reviews that the earliest moves towards Technical and Vocational Education and Training (TVET) in Nigeria could be traced to as far back as 1936, when Yaba Higher College was established. The 1950s saw the establishment of the technical institutes at Kaduna and Enugu, then in 1980s, those in Ibadan and Auchi. At independence, it was noted that Nigeria's education was more biased towards the traditional literacy and academic subjects resulting to lack of respect for manual and technical achievement. Hence Ashby commission in 1960 made recommendations for the strategic development of technical and commercial education leading to the award of the City and Guilds London Institute (CGLI) and the Royal Society of Arts (RSA). Conscious efforts for the formulation of a national programme on TVET in Nigeria commenced in 1962 with a seminar organized by the Federal Ministry of Education (FME) and sponsored by USAID. Still, not much progress was made, hence in 1969, a National curriculum conference was held where TVET was given additional attention resulting in the formulation of the National Policy on Education (NPE), published in 1977, and revised in (1981, 1998 and 2004). A blueprint on the NPE was published in 1978-79 in which much attention was given to technical education with focus on issues like the pattern of technical education, training of artisans, craftsmen and

technicians/technologists in secondary schools, training of technical teachers, encouraging women into technical education, and a clear path or avenues for advancement from one level to another. The 6-3-3-4 education and training scheme which is a product of the NPE provides for 6 years primary education, a 6 year secondary education which runs in two segments of 3 years each: the junior secondary school (JSS) and senior secondary school (SSS) and a 4 year undergraduate programme. At the JSS level, the training in integrated science and introductory technology are provided to equip learners both academically and vocationally. Further developments led to the establishment of more technical colleges and Polytechnics in order to increase graduates of basic crafts and technicians. The National Board for Technical Education (NBTE) was established in 1977 to coordinate and advise on all aspects of technical education outside the universities scheme. The NBTE, in order to ensure that the technical education scheme is tailored to address local skill needs, phased out the complex multiplicity of foreign crafts qualifications which were then replaced with the new National Technical Certificate (NTC) and National Business Certificate (NBC) along with their advanced levels and to which end a special examination body, National Business and Technical Examination Board (NABTEB), was established in 1995 with the sole aim of administering the technical and business examinations. However, it has been proved by Gray Longe Commission of 1991 (FGN, 1991) that the nation's efforts on technical and vocational education had only concentrated on the production of high level manpower to the detriment of the production of low and middle level manpower mostly needed for national development and technological advancement.

1.2.3 Statement of the Problem

The construction industry is basically considered as a leading driver of economic development in any nation because almost all other sectors of the economy depend solely on the product and services of the industry in one way or another for the smooth running of their operations. The manufacturing industry, for example requires appropriate buildings for their manufacturing plants and other infrastructures such as roads and office buildings among others. Nigeria as a developing country with a growing population and commensurate housing needs requires the services of a skilled workforce on construction sites. In the building and construction Industry, skilled

workers such as Bricklayers, block layers, carpenters, painters, amongst others form a large part of the site labour force whose input determine; to a great extent, the quality of the industry's products (Obiegbu, 2005; Akindoyeni, 2005). There is a short fall in the supply of these categories of site operatives within the Nigerian construction sector at the present time. The age-old method of locally organized apprenticeship scheme is becoming obsolete. The aged and retiring site operatives are not wishing that their children take to their trades; rather, their goals are for their offspring to become Architects, Engineers, Doctors, Accountants and such like (Dennis, 2004; Ireland, 2007). McCausland (2008) observes that gone were the days when the nail bag was passed from father to son, one generation passing its craftsmanship on to the next. In recent times, young people seem to eschew the high-end construction trades in exchange for the lure of promising positions in technology or other emerging fields, leaving a shortage of skilled workmen in the construction industry. The cream of the nation's youth no longer shows interest in skill acquisition; a case which is not the same with developed country like the UK where CIOB (2008) reports that the demand from young people for apprenticeship is outstripping the number of training places available in the industry. The body, in the 2007 Construction skills survey; reports that the industry's sector skills council was only able to place 8,500 willing people into apprenticeships out of the 50,000 who applied. In Nigeria, however, many who would have been trained to acquire necessary skills take to petty or even serious crime. Some of the artisans that are engaged on construction sites are essentially incompetent. Some of the trained craftsmen who should be engaged on construction sites have taken to other supposed money spinning businesses such as 'okada' commercial **motor cycle** transportation (Awe, 2006). Emphasis on skill instruction in technical colleges and vocational training centres has become secondary, due to poor funding and a misplaced emphasis and misdirected focus (Awe, 2004; Akindoyeni, 2005). Obiegbu (2005) also observes that problems of low wages, absence of a clear-cut career path; and a lack of organized apprenticeship training schemes are evident in the industry. Most of the Nigerian technical school students see themselves as being trained to perform supervisory roles on completion of their training, the Polytechnics and Universities are producing middle level and high level manpower respectively. If this trend goes unchecked; a period will come when there will be many graduates of construction related fields but few or an insufficient number of craftsmen to get the actual work done;

a situation that will be catastrophic for the Nigerian construction industry and the nation's economy as a whole. Construction work, as at the present time in Nigeria is labour intensive, unlike in some advanced countries such as the UK where a great percentage of site operations have been mechanized thus requiring fewer numbers of operatives on the construction sites (VanDoren, 2008). The bottom line is that the problem is with the industry, and will deepen with time; if a radical approach to training and education of new hands to be injected into the work streams is neglected.

1.3 Research focus

In the light of the statement of the research problems discussed above, this study focuses at examining the methods of craft training and identifying the factors militating against the training and development of construction related Tradesmen in the Nigerian construction industry. Training, in the context of this research is categorized into two; namely: training of unskilled persons to acquire skills in a particular construction related trade so as to be qualified to join the construction site workforce. The second type is the training for in-house construction workers which is premised on the need to increase productivity and provide existing staff with enhanced skills and knowledge to work competently. This type of training is necessary for the constant updating and up-skilling of tradesmen occasioned by increasing specialization of trades and new technological innovations in the sector. This latter form of training is referred to as development in this research. The study is focused on the Nigeria Construction industry, since the overall aim of the study is to develop a framework for vocational training and development of competent crafts operatives for the nation's construction industry. The study also examines the methods of training construction related workpeople in selected developed and developing nations with the view to acquiring relevant data that could impinge on the process of adequately formulating a framework that could serve as a guide for the effective training and development of construction site operatives in Nigeria.

1.4 Research aim

The Research aims at identifying the problems confronting construction related vocational skills training and development; with the view to developing a framework for the training and development of construction crafts skills in the Nigerian construction sector.

1.5 Research objectives

In consonance with the aim of this research, the Objectives of the study are:

1. To examine the past and current methods of vocational education and training (VET) for craftsmen.
2. To determine the factors responsible for crafts skills shortage and skills gap in the Nigerian construction sector.
3. To ascertain the problems militating against VET and their contribution to the knowledge gaps among craftspeople in the Nigerian construction industry
4. To investigate reason(s) why the younger generation in Nigeria is not showing interest in construction related vocational training/skills acquisition and proposed strategies for motivating and mobilising them.
5. To review the efforts and innovations of selected countries on vocational skills training with the view to adopting relevant strategies in the emerging framework.
6. To develop and validate a functional framework for training and development of construction related craftspeople in the Nigerian construction sector.

1.6 Significance of the Study

In an Appraisal Report on Skills and Vocational Education Project in Nigeria, African Development Fund ADF (2005) notes that Nigeria as a country undergoing economic reform needs a productive, competent, and flexible workforce to further her economic development. The demand for skilled workers and qualified technicians is already

acute and will become even more intense as the industrial sector becomes the dominant provider of employment. The vocational and technical education (VTE) sub-sector is however unable to respond to the changing labour market requirements because of its present supply-driven orientation. Its curricular, instructional equipment, teaching methods, and evaluation techniques are noted to be outdated, leading to inappropriately low internal and external efficiencies. Effective skill acquisition strategy is therefore relevant to the nation's situation. Akindoyeni (2005) further identified the importance of crafts in human endeavour, especially in the Nigerian construction industry. He opines that all activities on the building sites are carried out using hand-held tools, utilized by craftsmen. With industrial revolution, most other industries became mechanized or automated. Precision required in the finished work, slowed down the automation in the construction industry, hence automation in the industry did not move beyond the mechanization of earthworks, prefabrication of components and the vertical/horizontal transportation of materials and components on the site. He observed that, the placement and final assembly is, till this very time carried out by human beings (craftsmen). The craft still maintains its territory, though mostly by inexperienced and incompetent men. Obiegbu (2005) highlights the importance of crafts in that; the construction industry is of considerable economic importance to Nigeria. Construction is a complex process, spanning design, production, maintenance and heritage work. The majority of skilled workers (currently about 60 percent) who are-self employed craftsmen form the backbone of the nation's construction industry. The importance and relevance of skills is further evident in that the construction industry's skill needs are complex and heavily dependent on the type of project involved. Good craft skills are crucial to the successful completion of any construction contract. The need for a 'Functional Framework' for adequate training and development of capable and competent trades' people in the Nigerian construction sector can therefore not be over-emphasized.

Furthermore the structure and organization of the construction industry is dependent on the nature of work to be done i.e. building or civil engineering works, the technology of choice and the social and economic environment. The construction industry in Nigeria is structured along the line of small to medium to large. All the various categories of the structure need competent craftsmen for successful project delivery to time, cost and quality. Moreover, regular and adequate supply of trained, tested, competent, confident

and productive skilled site operatives is a mandatory requirement for competitive performance of the construction industry in any economy. Any shortage in the supply of these set of workers will have an adverse effect on the output of the industry, affect other organization sectors that are the end users of the industry's product and eventually affect the developmental programme and the overall economy of the nation. The significance of this study is evident by the discovery of the problems militating against effective training and development of construction craftspeople and the effects of these on the supply of these categories of workforce in the industry. The ultimate focus of the research is to develop and validate a functional 'Training and Development Framework' for the Training of Construction related craftspeople. This will address the prevalent challenges of skills shortages and knowledge gap in the nation's construction sector result in consistency in the supply of competent craft workforce. If the solutions proffered by the study are adequately pursued; the perennial problem of training and shortage of construction related craftsmen in the Nigerian construction industry could be drastically reduced if not completely eradicated. Every sector having a stake in the training and utilization of construction related craftsmen will be awakened to their roles, and the industry in particular and the nation as a whole will be better for it.

1.7 Statement of Research Questions

According to Griffith and Watson (2008), the starting point for writing a thesis is the production of a thesis statement. The statement will assist the researcher in focusing the search for relevant information. This research sets out to examine the factors militating against effective training and development of construction related crafts skills in Nigeria, with the view to developing and validating a comprehensive and industry specific framework for effective crafts skills training and development in the nation's construction sector. Furthermore, research project requires a clear focus, thus it is essential to start with clearly defined and agreed objectives for the project (Griffith and Watson, 2008). The research aim, objectives and problems were presented under relevant sections in this chapter. The questions of the study emanating from the foregoing, and for which data were sourced with the view to providing appropriate clues are stated as follows:

1. What skill training method(s) proved effective in producing needed craftsmen for the Nigerian construction sector in the past?
2. What are the factors responsible for craft skills shortages and skills gap in the Nigerian construction sector?
3. In what way(s) are the problems confronting VET contributing to knowledge gaps among construction craft workers in Nigeria?
4. Why are most Nigerian youth not showing interest in construction related skills acquisition and how best can they be mobilised for skills training?
5. What effective strategies are other countries adopting to address construction crafts skills training to curb labour shortages?
6. How can the organized private sector positively impact craft skills training and development in the Nigerian construction sector?

The focus and method of the data collection for the study was informed by the research questions. The sources of data for providing adequate answer to each of the questions are as indicated in Table 3.2. The strategies for data collection include both secondary and primary research.

Research question five (5) in particular was addressed through the review of literature on skills training strategies in selected countries (see chapter 3 of the report). Two mini studies involving primary data collection through questionnaire surveys and interview enquiries were also conducted in the UK with the view to intimating the researcher with how the nation as a developed economy is coping with problems of crafts skills shortages, training and development. One workshop paper was written and presented based on one of the studies. The paper titled: 'Improving the Culture of Training in the UK Construction Sector through Skills Training Strategies' was presented at the ARCOM Doctoral Workshop on Culture in Construction, held at the Department of Civil and Building Engineering, Loughborough University on 20th April 2011. Relevant factors emerging from the data and feedback from the workshop were considered as appropriate in the formulation of the framework presented in chapter eight (8) of the report.

1.8 Overview of Research methodology

In order to successfully address the ultimate goal of the research, taking into cognizance the study aim, objectives and questions of the study; the mixed method approach was adopted for the research. The research strategy combines the quantitative and qualitative techniques. Sequel to the in-depth review of related literatures, pilot studies were conducted and analyzed and reported in the form of conference papers published at three different conferences, namely ARCOM 2009, CIB 2010 and at the third international World of Construction Project Management Conference 2010. Subsequently, questionnaires were designed and administered with construction industry professionals and youth in construction related technical, vocational education and training (TVET) in Nigeria. A pragmatic approach was also adopted in undertaking a documents analyses of the National Policy on Education (NPE) of the Federal Republic of Nigeria, along with other related documents on technical and vocational education (TVE); with the view to appraising the effectiveness of the existing vocational education and training (VET) arrangement in achieving the set objectives for the training and development of needed skilled vocational crafts persons particularly for the nation's construction sector.

Following the preliminary findings from the data elicited through the literature review, pilot studies, questionnaire survey, and documents analyses; qualitative telephone interviews were conducted with selected experienced building professionals and youth representative so as to corroborate the findings from the various enquiries conducted in the course of the study.

The set aim and objectives of the research was satisfactorily achieved by identifying the militating factors against construction craft skills training and their implication for crafts skills supply in the Nigerian construction sector. A comprehensive framework for the training and development of construction crafts skills in the nation was also developed and validated based on the analyses of emerging data from literature, survey, documents analyses and interviews.

1.9 Structure of the thesis

The thesis comprises nine (9) chapters, organized as shown in Figure 1.1. Chapter 1 gives an overview of the context within which the research is undertaken, and outlines the background of the study. The chapter highlights about the construction industry and TVET in Nigeria, indicates the underlying problems necessitating the research, the study focus, aim, objectives and significance of the study. The research questions and an overview of the research methodology are also presented.

Chapter 2 presents a review of related literature under four sections. Section one focuses on the construction industry skills need and crafts skills areas, highlighting on the job definitions and training processes for selected core crafts skills in the sector. The nagging problems of shortages of crafts skills operatives and its implication for the Nigerian construction sector are presented in section two. Skills shortages problem in other selected developed and developing economies are also highlighted under this section. Issues on Technical and Vocational Education and Training (TVET), history, philosophy, and structure of general education and training in Nigeria are discussed in section three. The section also focused the problems of vocational and technical education (VTE), apprenticeship and relevance of skills in the nation's construction industry. The last section of the chapter explains the characteristics and features of skills training and development, purposes of workforce training, factors that influences training and skills development methods, procedure for selection of training methods, training implementation and evaluation methods and its purposes; and closes with factors that affect effective training.

Chapter 3 continues with review of literature but focuses on the history of crafts skills training and government interventions in selected developing and developed nations with the view to guiding the approach to the formulation a functional framework for achieving effectiveness in construction related craft skills training and development in Nigeria. The chapter explores the approaches of selected countries to TVET with special interest in the methods or strategies for the organization or implementations of training and development of crafts skills cadres for the industrial sector. The main

objective of the chapter is to gather relevant data from literature to gain insight into vocational skills training approaches in other economies that could impinge on the emerging framework's proposals for the training and development of construction sector skilled crafts operatives in Nigeria.

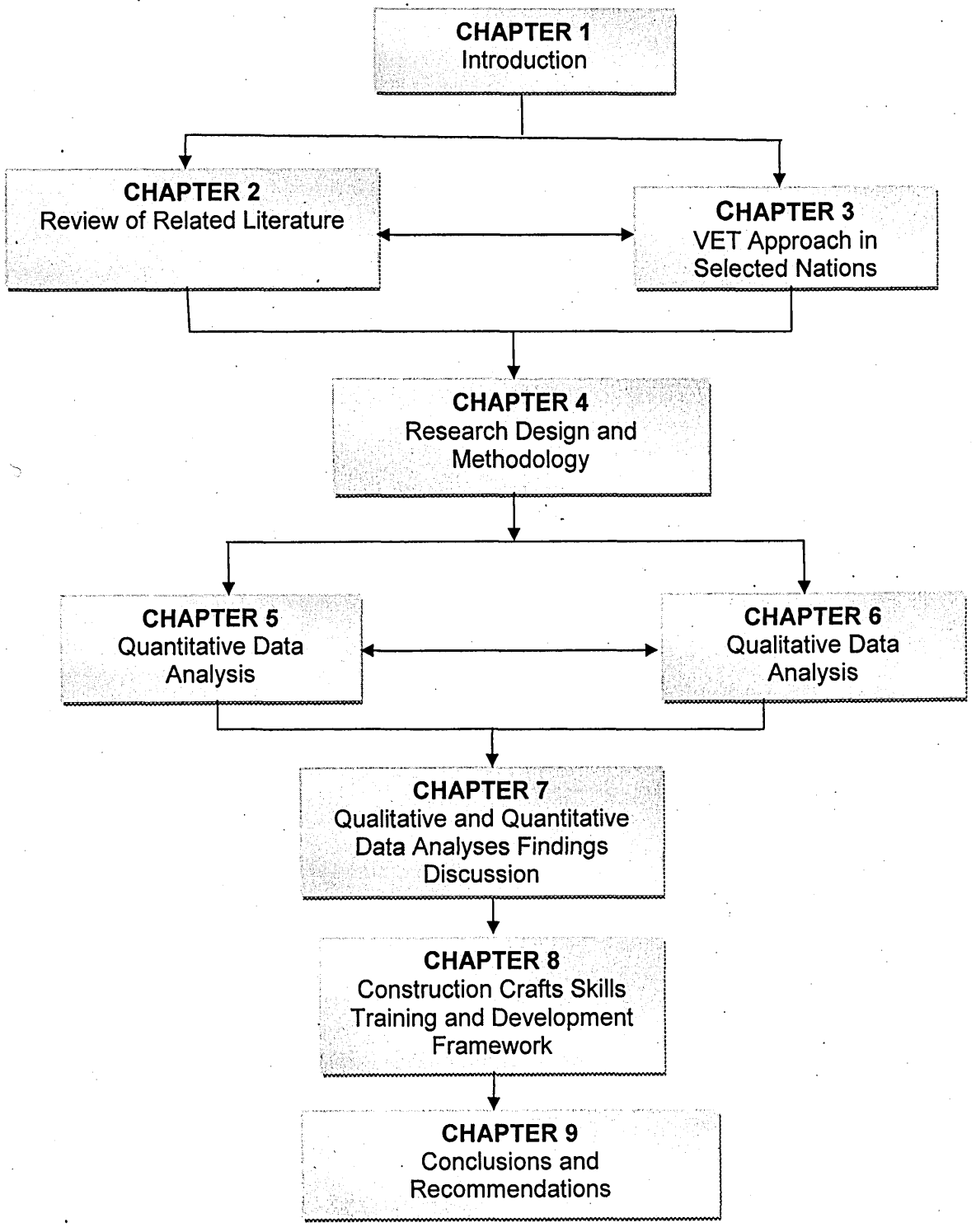

Figure 1.1 Organisation of the Thesis

Chapter 4 provide a brief overview of research philosophy and clearly articulates on the research methodology adopted for the study. Various related research methodologies are discussed. The chapter elaborates on the research process and different methodological concepts and approaches to research along with the limitations of the different approaches. The choice of methodological approach for the research is explained and arguments presented to justify the mixed method approach. Pilot studies conducted in the course of the study are also discussed. The chapter explained the research design highlighting the methods for collection and analysis of data for the study. The issues of validity and reliability assurance of the study are discussed and the chapter closes with the outline of the conceptual theoretical framework that directed the research is presented.

Chapter 5 reports the first part of the data analysis focusing on the quantitative data collection and analysis. The chapter presents the approach to quantitative data collection and analysis including the analysis of the survey respondents. The selected statistics tests and methods for analysing the quantitative data collected through the questionnaire survey were highlighted. The analyses of the quantitative data and presentation of findings form the major part of this chapter. The chapter dwells on both descriptive and inferential statistical analyses using the Predictive Analysis Software (PASW) statistics version 18.0.

Chapter 6 presents the qualitative data collection and analyses which comprise of qualitative interviews conducted with 7 selected respondents and the document analysis qualitative enquiry. The chapter explains the methods of the qualitative data collection and analysis, the structure of the qualitative survey and also highlights on the profiles of the interview participants and the selection criteria vis-à-vis the objectives and questions of the study. The relevance and guiding principles for the selection of documents for analyses is elaborated. The chapter elaborates thematically on the data applying the analyses to the aim and objectives of the research and to the provision of answers to the questions of the study. The documents analyses aspect of the chapter explored the Nigerian TVET agenda, identifying the variance between the planned and

the actual with the view to proposing possible strategies for achieving the goal of training and development of construction crafts skills for the nation's construction sector.

Chapter 7 discusses the findings from quantitative and qualitative analyses, articulating and expatiating on issues emerging from the analyses of chapters 5 and 6 of the report. The chapter, in a thematic approach, elaborates on the findings from both analyses applying same to the current situation in Nigeria and prognoses on the possible effective strategies for tackling the identified crafts skills training problems in the nation's construction sector. The structure adopted for the discussion of findings in this chapter is aimed at systematically providing answers to the postulated research questions and focuses of the formulation of the construction crafts skills training and development framework which is the ultimate goal of the study.

Chapter 8 focuses on the development of the Construction Crafts Skills Training and Development Framework pedestal on data from literature, questionnaire survey and qualitative enquiries. The chapter elaborates the framework proposals in five specific headings which include: CCSTD scheme concept, CCSTD scheme regulatory organ, CCSTD scheme's recommended trades, CCSTD scheme implementation strategies, and CCSTD scheme's post implementation and feedback strategies.

The authenticity of the findings and recommendations of any research depends on the process of validation of its findings. The latter part of the Chapter is thus devoted to the description of the validation process, identifying the objectives of the framework validation and highlighting the profiles of the verifiers. The section further presents the responses and the analyses of feedback from the verifiers of the framework. The chapter ends with an outline of the summary of findings from the validation process.

Chapter 9 concludes the thesis with a summary of conclusion and recommendations of the study. The chapter presents the summary of findings highlighting of how the questions of the study were adequately addressed. The chapter further articulates the

major conclusions of the study, the novelty of the CCSTD Framework, its relevance, and significance to the Nigerian construction industry and overall economy. The benefits and the research contributions to the body of knowledge are also explained. Recommendations to the beneficiaries of the CCSTD framework were presented. The chapter concludes with a critical evaluation of the study highlighting on limitations of the research and identification of areas for future and further research.

1.10 Summary of the chapter

The strategic position of the construction industry as a prominent driver of the economic and mass employer of crafts skills workforce make the subject of training and development of crafts skills career in the sector to be imperative. The construction process also requires various input from different skilled craftsmen since the nature of work in the sector is still manual labour intensive, hence the need for effectiveness in the training and development of these cadre of skills both quantitatively and qualitatively in the Nigeria construction sector. It is within this context that this study is embarked upon. This first chapter of the thesis has set out the background, aim and objectives of the study. The significance of the study, its scope, the questions which the research sets out to answer; and an overview of the research methodology to be applied are highlighted. In consonance with the designed structure of the thesis, the next chapter presents the literature review as earlier indicated in this chapter.

2.0 Review of Related Literature

2.1 Chapter Introduction

This Chapter focuses on the review of literature related to the research aim, objectives and questions. The Chapter opens with the identification of the multi-disciplinary nature of the construction industry skills and explored the training mode, professional practice, job nature and definitions for selected core crafts in the industry. Further, the Chapter takes an overview of shortages skilled site operatives prevalent in the construction sectors in Nigeria and other selected countries around the globe; with the view to highlighting the imperative for training and development of construction craft workforce to address the labour shortages malaise. Nigerian education system and craft skills training/VET approach for producing craft workforce for construction industry is also elaborated and the missing link highlighted. The chapter also presents a systematic review of VET literature in other countries with focus on the systems designed to generate a sustainable supply of crafts skills. Literature on characteristics and importance of craftsmen training, education and development, objectives and principles of training were also explored with the ultimate goal of gathering robust secondary data to provide a sound basis for an in-depth appreciation of the research problem.

Sub-Section 1

2.2 Construction Industry Skills Areas

The Construction Industry is broad and provides a significant contribution to the economy of any nation through the large number of companies operating within the industry, the number of individuals who find self-employment and the vast number of local people who are employed within the industry. In this section a substantial body of literature is reviewed in order to have a good understanding of the diverse and vast trade and professional specializations within the industry.

2.3 Areas of skills in the Construction Industry

As identified by Akindoyeni (2005) and Obiegbu (2005), some of the areas in which skilled workmen are needed in the construction industry, on a broad basis, include the following:

- Professionals

- Technologists
- Technicians
- Administrative staff
- Craftsmen (Tradesmen)
- Operators

The CITB (2008) submits that UK's Construction is a large industry engaging about 2 million people in more that 700 different types of jobs and observes that there is always a demand for new people to join. The CITB identified about fifty construction skills or speciality areas; these were classified under two broad headings which include Professions and Job occupations. According to CITB, the Professional group comprise of:

- Architect
- Architectural Technologist
- Building Engineer
- Building Services Engineer
- Building Control Surveyor
- Building Surveyor
- Civil Engineer
- Construction Manager
- Facilities Manager
- General Practice Surveyor
- Geospatial Modeller
- Geotechnical Engineer
- Geomatics Surveyor
- Hydrographic Surveyor
- Landscape Architects
- Land Surveyor
- Project Manager
- Quantity Surveyor
- Structural Engineer
- Town Planner

The skill occupation classification includes:

- Wood occupations
- Roofing occupations
- Trowel occupations
- Interior occupations
- Demolition occupations
- Site Technical support
- Site Inspector

The CITB (2008) further gave clarifications on the various skills under each job occupation: The **Wood Occupations** comprise of:

- Carpenter and joiner
- Wood Machinist
- Bench joiner
- Formworker and
- Shopfitter

The **Roofing occupations** comprise the following:

- Single ply roofer
- Roof Slater and Tiler
- Roof Sheeter and Cladder
- Mastic Asphalter
- Liquid water-proofing system operative
- Lead sheeter
- Built up felt roofer

Trowel Occupations include:

- Bricklayer
- Stonemason and
- Construction operatives

Interiors occupations have under it the:

- Dry liner
- Floor layer
- Glazier
- Painter and decorator

- Partitioner
- Plasterer
- Renderer
- Wall and floor tiler
- Plumber

According to the CITB (2008) **Demolition occupations** consist of the:

- Steel erector
- Scaffolder and the
- Steeple jack

The **Technical Support** team include the:

- Estimator and
- Architectural technician

The Construction Skills Certification Scheme (CSCS) 2008 classifies construction related skills into three broad groups as follows: Group A - Craft and Operative, Group B - Technical, Supervisory and Management and Group C - Construction related Occupations. From the CSCS (2008) classification, the craft operatives occupational skill is 178; the technical, supervisory and management occupational group are 63 while construction related occupation has 436 identified skills. According to STC (2007), occupational skill in construction has two major classifications which are the Craft and Non-craft Careers in Construction. The Crafts Careers in Construction has in the group 15 major crafts which are listed below:

- Bricklayer
- Painter and Paperhanger
- Carpenter
- Pipe-fitter/Steamfitter
- Cement Mason
- Plasterer
- Electrician
- Plumber
- Glazier

- Operating Engineer/Equipment Operator
- Roofer
- Iron Worker
- Sheet Meal Worker
- Labourer
- Surveyor/Field Engineer (Rodman, Chainman, Instrument man, Party chief)

From the classifications based on the above literatures, it is evident that the construction industry's skills areas are vast and diverse. This Research project however focuses on the education and training of core skilled site operatives who are directly involved in the actual construction works on the site. Such as those in the Trowel trades, (i.e. masons, bricklayers), wood trades (carpentry, joinery, furniture making, wood machinist), metal and steel trades (metal work, steel fixers), plumbing, roofing, tiling and painting and decorating.

2.3.1 Job Definition and Training of selected core skills in the construction industry

The various construction craft skills-persons perform different and specific tasks in the course of any construction project. They also work under different conditions, undergo varied training and need to meet some general academic and basic physical requirements. The U.S. Bureau of Labour Statistics (BLS, 2007); Construction Industry Training Board (CITB, 2008) and Salute to Construction (STC, 2007) give an insight into the nature of work, training, employment and job outlook of some of the construction skills specialization. Summary of information relating to selected trade specializations is depicted in Tables 2.1 (a) and (b) under this section.

Table 2.1(a): Job definition, training nature and basic requirements for core construction trades.

Trade	Job Definition/Work Environment	Nature of Training	General Academic Requirement	Basic Physical Requirement
Bricklayers, Blocklayers and Stonemasons	Build: Walls, fences, roads, floors. Work: indoor/outdoor	Formal and Informal Apprenticeship 2-4yrs training.	Junior or Senior Secondary Education.	Stamina, good eye-sight and communication skills.
Carpenters	Install house roof system, kitchen cabinets, ceilings, formwork; timber: walls, structures and finishing. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 3-4 years.	Junior or Senior Secondary Education.	Stamina, good eye-sight and communication skills.
Roofers	Install and repair roofs made of asphalt, tar, gravel, metal, plastics or tiles. Work: mostly outdoors.	Formal and informal apprenticeship. Training duration: 2-3 years.	Junior or Senior Secondary Education.	Stamina, good eye-sight and communication skills.
Painters and Paperhangers	Apply paint, varnish and other finishes; wall washing and preparations; cover walls, ceilings with decorative materials. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 2-4 years.	Basic, Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Plumbers, Pipe-layers, Pipefitters and Steamfitters (may specialize)	Install and maintain plumbing fixtures; pipe works for drains, sewers, cooling systems, water mains, gas or oil lines. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 4-5 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Plasterers and stucco Masons	Apply plaster or wet finishes to interior walls, ceilings and floors; install prefab insulation system. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 2-3 years.	Junior or Secondary Education.	Stamina, manual dexterity and artistic creativity; good eye-sight and communication skills.
Sheet Metal Workers	Fabricate, install and maintain heating, ventilation and air-conditioning duct systems; roof rain gutters, down-sprouts and other sheet metal products. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 3-4 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.

Adapted from BLS, 2007; STC, 2007; CITB 2008; CSCS, 2008

Table 2.1(b): Job definition, training nature and basic requirements for core construction trades.

Trade	Job Definition/Work Environment	Nature of Training	General Academic Requirement	Basic Physical Requirement
Structural, Reinforcing Iron and Metal Workers (Steel Erectors).	Install prefab structural steel frames, iron or steel girders, columns, bridges, reinforcing bars and mesh in concrete works. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 3-4 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Woodworkers	Create simple and complex designs on wood using machines; set up, operate and tend all types of woodworking machines e.g. computerized numerical control (cnc) machine ; prepare floorboards, skirting boards, doors and window frames; cut/shape wood using specialist equipments in machine shops. Work: varies by industry and specific job duties, mostly indoors.	Formal and informal apprenticeship. Training duration: 2-3 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Electricians	Lay-out, install, test and maintain electrical wire systems, conduits, fixtures, appliance and services. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 3-4 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Glazier	Responsible f or sizing, cutting, fitting, setting, replacing and removing of all glass products into openings of all kinds; (e.g. doors and windows openings), install glass and metal framing, claddings, roof-lights etc. Work: indoor/outdoor.	Formal and informal apprenticeship. Training duration: 2-3 years.	Junior or Secondary Education.	Stamina, good eye-sight and communication skills.
Construction Labourers	Perform an extraordinarily wide range of skills, required on construction sites, highway and heavy construction sites, tunnel and shaft excavations, demolition sites; site clearing/cleaning operations, concrete mixing and placing; loading, un-loading and distribution of construction materials etc. Work: indoor/outdoor.	Mostly informal 'learning-by-working'; but formal apprenticeship programs provide the most thorough preparation. Training duration:2-4 years.	.Junior or Secondary Education.	Stamina, good eye-sight and communication skills. Manual dexterity, eye-hand coordination, team spirit.

Adapted from BLS, 2007; STC, 2007; CITB 2008; CSCS, 2008

2.3.2 Section Summary

The construction industry's skills' need is diverse; this section reveals the various skills available in the industry as listed by some of the organisations whose literature on the subject were reviewed. The section also dwells on the job definition and nature of training of some selected core trades - namely: Bricklayers, Blocklayers and Stonemasons; Carpenters, Roofers, Painters and Paperhangers, Plumbers, Plasters and Stucco Masons, Sheet metal workers, Structural and reinforcing iron and metal workers, Woodworkers, Electricians, Glazier and Construction labourers. The striking fact as reflected in the summary of job definitions and requirements depicted in Table 2.1 is that the various construction skills need adequate and comprehensive training in order to achieve confidence and competence to move the industry forward. There is need for adequate and workable plan for the Education and Training of construction operatives in order to ensure a regular and commensurate supply of seasoned workforce to meet the industry's ever-increasing manpower requirement.

Sub-Section 2

2.4 Construction Industry Skills Shortages

The wide spectrum of skills needed in the construction industry calls for proactive actions in ensuring that competent skilled operatives are available to meet the industry's demand; but from the available literature there seems to be evident shortfall in the number of tradesmen being trained to satisfy the challenging requirements. The Government's Skills Task Force STF (2003) distinguished between "skills shortages;" it defines it as an absolute absence of people with the required skills in the workforce. "Recruitment difficulties" is defined as a situation where employers could not attract workers in particular locations or at certain terms and conditions. A further category was described as "skills gaps" - this is where members of the existing workforce lack necessary skills to do the job.

This section reviews relevant literature on construction industry's labour shortages in Nigeria and few other countries around the globe.

2.4.1 Nigerian Construction Industry and Craft Skills Shortages

The Nigerian construction industry is relatively small when compared to the global construction industry which is estimated to be about $4 trillion; the Nigerian construction industry makes up only about 0.2% of the global value with about $3.15bn in 2008. The nation's construction industry is the highest and fastest growing among other West African economy. It is projected to grow at a fast rate as long as the oil prices remain high and government investments in infrastructural facilities remain high (Dantata, 2008). The Nigerian construction industry has outgrown most other sectors of the local economy over the last few years. In 2005, the industry grew at an impressive rate of 12.10%, which was more than double the average growth rate of the overall economy of 5.6% in the same year. With the projected growth of the economy, the construction industry is expected to thrive. The sector operates under set rules and regulations. The average contribution of the building and construction industry to the overall GDP between 2001 and 2005 was fixed at about 1.44%; the industry contributed 1.62% to the GDP in 2005 and projected to contribute 1.83% in 2008 (NBS, 2005). The growth rate of the construction industry in Nigeria was estimated to be over 20% between 2006 and 2007 (BMI, 2007). The NBS (2010) however reported that the Nigerian Building and Construction sector contributed 2% to the GDP and recorded a growth rate of 12.08% in 2010. The industry accounts for about 69% of the nation's fixed capital formation; indicating that about 70% of the net capital investment is in the construction sector (BMI, 2007). The sector which provides the infrastructure that pedestals other sectors of the economy is set to further experience a substantial growth with the attendant skills crisis in the course of implementing the national plan for the Nigerian vision 20:2020 (FGN, 2010; Odusami and Ene, 2011).

The Nigerian construction industry, like most other developing economy, is divided into two major sectors of the organized "formal" and the un-organized "informal" - which does not have reliable data, and comprise of the simple residential buildings and similar structures built by private individuals and constructed through the efforts of gangs of artisans and labour; using the 'direct labour' or owner supervised construction option. The organized sector constitute major construction firms which are legally registered in the country and carry out construction contracting in an organized format, using highly skilled expatriates and local skilled operatives.

The problem of lack of adequate skilled manpower in the Nigerian construction sector has been a major issue over the years. The number of competent skilled operatives is very small relative to the demand; majority of the craftsmen are trained through the informal apprenticeship scheme which lack standard and they produce 'half-baked' craftsmen. Those trained in the technical colleges lack the basic skills to make them 'trainable' for skilled employment (Idehen, 2008); because of inadequate training facilities and lack of exposure to practical work during their training (Akindoyeni, 2005). Many of the large construction firms import skilled operatives from other countries to fill the gap; this in turns add to their operating costs and reduce profit margin (Dantata 2008). Odusami and Ene (2011) has also observed that the highest proportion of construction skills are provided by training which includes: provision of comprehensive training for new entrants into the sector, up-skilling of partly skilled workers through provision of top-up training, re-skilling persons already in the industry to cope with challenges of changes in technology innovation. They however argued that employers of construction skills in Nigeria would rather 'poach' already trained workers than pay the price of training new hands. This phenomenon compounds the skills shortage problem with the consequential effects of increase in wages and an influx of unskilled person into construction work.

2.4.2 Implication of acute shortage of Artisans and Craftsmen to the Nigerian Building Industry.

Awe (2004) observes that Nigeria as a developing country with growing population and attendant housing needs require the services of skilled and semi-skilled site workers. In the building and construction industry, skilled workers, such as Bricklayers, Blocklayers, Plumbers, Tilers, Carpenters, Painters etc form a large part of site labour and their input determines the quality of the industry's products. At the present time the supply of these categories of site operatives is dwindling, the old and experienced hands are ageing and retiring. The age-old method of locally organised apprenticeship scheme is becoming unpopular, the cream of youth prefer other non-skill business such as 'Okada' motorcycle transport business or other petty trading to learning skills. The emphasis on skill instruction and acquisition in technical colleges has become secondary. If the situation is not given prompt attention and positive action by all the relevant bodies, a time may come when the

nation will have many building and engineering related graduates and construction site managers but insufficient number of skilled site operatives to move the industry forward.

2.4.3 Construction skills shortage in other nations

Construction skills crisis is not experienced only in Nigeria, findings from skills survey conducted by the CIOB in recent past indicates that a skills shortage will continue to be a challenge for the UK built environment and one that will worsen as the demand for construction work increases (CIOB 2008). Other similar surveys support this opinion (CCPA, 2007; ACE, 2007; RICS, 2007).

Dempsey (2006) reports that Poland's skills shortage has aggravated due to migration of skilled persons to other European countries since that nation joined the EU in May 2004. The mass migration has left Poland's construction giants feeling 'pinched' (Lucas, 2008; Dougherty, 2008). There is a large lack of workers such as bricklayers, roofers and crane operators. BPCC (2008) observes that the key barriers to doing business in Poland construction sector are labour shortage and high labour costs. The need for labour is particularly acute in the construction sector in the run-up to Euro 2012 (Connolly *et al.,* 2007). The case is the similar in New Zealand where migration of skilled construction trade workers such as bricklayers, carpenters/joiners, plasterers, glaziers, plumbers among others is already taking its toll on the construction industry (BBT, 2008; CS, 2007; CIWT, 2007). Available literature on construction sector skills shortage in Australia (Lawyers, 2008), USA (IBEW, 2005; McCausland, 2006; Ireland 2007; Avera, 2007; and Kay and Karen, 2008), Canada/Aberta (COOA, 2005; Adair, 2006; Realty Times 2006), Malaysia (Sooi, 2007), India (Magar, 2007), China (Russell, 2005; Trombly and Rollins, 2006), Singapore (Yeoh, 2007), Japan (ILO, 1995; Wiseman and Nishiwaki, 2006; Duncanes and Abella, 2008), Middle East (Egbert, 2007; Bowman, 2008; Khalli, 2008) and South Africa (Chait, 2005; William, 2005) all attest to the prevalence of skills shortages and its attendant consequences in many developed and developing economies.

2.4.4 Section Summary

This section reviews literature on construction industry's labour shortage in selected countries around the globe. From the available literature, it can be established that the phenomenon is not peculiar to Nigeria or Africa in particular but it is a global issue; different factors seem to be responsible for the malaise in various countries - ranging from ageing working population or decline in the working age population coupled with shrinking youth population to be trained to take over, because of decline in fertility rate; poor image of the industry with parents and school counsellors having wrong or misconceived views of the industry; beliefs that the industry is a physically demanding one without IT or new technology applications or skills. Inadequacy of training or poor approach to training of construction related skills, and migration to other countries where wages are high and prospects greater are some of the identified reasons for shortage of construction industry's workforce in some countries. Nigeria, in particular, as a developing economy with a growing population needs a commensurate housing and other infrastructural facilities. The nation therefore requires the services of a skilled workforce on construction sites; much more, construction work, as at the present time in the nation is labour intensive. Skilled workers such as Bricklayers, block layers, carpenters, painters, amongst others form a large part of the site labour force whose input determine; to a great extent, the quality of the industry's products. Presently, there is a short fall in the supply of these categories of site operatives; the age-old method of locally organized apprenticeship scheme is becoming obsolete. The aged and retiring site operatives are not wishing that their children take to their trades; rather, their goals are for their children and wards to become Architects, Engineers, Doctors, Accountants and such like. Young people seem to eschew the high-end construction trades in exchange for the lure of promising positions in technology or other emerging fields, leaving a shortage of skilled workmen in the construction industry. The cream of the nation's youth no longer shows interest in skill acquisition, many who would have been trained to acquire necessary skills take to petty or even serious crime. Some of the artisans that are engaged on construction sites are essentially incompetent. Some of the trained craftsmen who should be engaged on construction sites have taken to other supposed money spinning businesses such as 'okada' commercial motor bike transportation. Emphasis on skill instruction in technical colleges and vocational training centres has become secondary, due to poor funding and a misplaced emphasis

and misdirected focus. Most of the Nigerian technical school students see themselves as being trained to perform supervisory roles on completion of their training, the Polytechnics and Universities are producing middle level and high level manpower respectively. If this trend goes unchecked; a period will come when there will be many graduates of construction related fields but few or insufficient number of craftsmen to get the actual work done; a situation that will be catastrophic for the Nigerian construction industry and the nation's economy as a whole.

The bottom line is that the problem is with the industry, and will deepen with time; if a radical approach to training and education of new hands to be injected into the work streams is neglected.

Sub-Section 3

2.5 Technical/Vocational Education and Training (TVET) in Nigeria

2.5.1 History of General Education in Nigeria

Nigeria is a federation of 36 states with the Federal capital Territory situated in Abuja. As of mid 2008, the population is estimated at 138 million making it the largest nation the African continent (NQAI, 2008). The nation's population is estimated at 150 million as of 2011 (CIA, 2011).

There are 774 local government areas and 394 different languages spoken in the nation; Hausa, Yoruba and Igbo are spoken by over 50 percent of the population and have been declared the major national languages. English is the official language and is widely spoken (Clark and Sedgwick, 2004). Language has created something of a problem with respect to education in Nigeria, because the languages spoken by the smaller minority are not written, devising instructional material in those languages is difficult. Esu and Junaid (2009) reviews that educational systems existed in African societies prior to the coming of the Europeans. Such education was for the induction of members of the society into activities and mode of thought that were considered worthwhile. African societies were noted for their rich cultural heritage which was preserved and transmitted from generation to generation through a system of traditional education. The system, then, was variously referred to as indigenous, pre-colonial, informal, tribal, or

community-based education. Even though there were in most cases no schools and professional teachers, there were certain centres for initiation where adult members of the society served as teachers. The trainings were essentially practical in nature and designed to enable the individual to play a useful role in society. The philosophy of traditional education was very pragmatic and designed to form a gateway to the life of the society. The system was based on the philosophy of functionalism and productivity; although there were few theoretical emphases, the main objective was to inculcate a sense of social responsibility. Mkpa (2004) reflects that there are basically three main educational traditions which are known to have flourished at various times in Nigeria. These are the Indigenous, Islamic and Western education. The Indigenous education represents the community based education offered in the pre-literate era, offered by community members who possessed specific specialized skills or abilities in various fields of human endeavour. In most communities prior to the introduction of formal education, male children were brought up to take to whatever occupation their fathers engaged in; in other cases the boys were sent to other masters as apprentices to learn various vocations and life etiquette. Girls on the other hand were expected to learn domestic and other chores such as sweeping, hair weaving among others from their mothers. Esu and Junaid (2009) further noted that one of the main features of traditional African education was the apprenticeship mode of learning whereby people learned under masters. Traditional education is thus a process by which every society attempts to preserve and upgrade the accumulated knowledge, skills and attitudes in its cultural setting and heritage to foster continuously the well- being of humankind. The content of the curriculum of traditional education was very comprehensive and based on the philosophy underlying the various job responsibilities in society. Apprentice systems were widespread throughout all occupations; the trainee provided service to the instructors over a period of years and eventually struck out on his own. Traditional or indigenous education not withstanding the geo-political variations in the country trained individuals to fit usefully into their society by learning and practising economic skills for self-sustenance; and contributing to the overall development of the society. Indigenous education brought about gainful and productive employment for the people in its era but had its limitations. Although it was somewhat comprehensive in that it provided training in social and vocational aspects; yet people depended only on the power of their memories for the retention and transmission of learning and instruction

to the future generation due to absence of writing. Islamic education was brought into the northern part on Nigeria in the early 14th century and before long, most of what later became the Northern Nigeria was islamised. Islamic education brought along with it Arabic learning since Arabic is the language of the Quran and was therefore perceived as having great spiritual value. Arabic and Islam were taught simultaneously in primary schools. As a result of the political and social influence which Islam and Quaranic learning conferred on those who possessed it, many of the rulers started to employ Islamic scholars as administrators. The school continued to grow and expand in scope such that with the support of the then Northern Region Ministry of Education, by 1960 it grew into the popular Bayero College, Kano which became a part of the Ahmadu Bello University and later the present Bayero University which has helped to expand the scope of Islamic studies in Nigeria (BUK, 2006; Onlinenigeria, 2008). Western-style of education came to Nigeria with the missionaries in the mid-nineteenth century. This educational tradition began seriously with the arrival of the Wesleyan Missionaries at Badagry in 1842 with the first mission school founded in 1843 by Methodists; the Anglican Church Missionary Society founded a chain of missions and schools in the early 1850s followed by the Roman Catholics. An education department was founded in 1887 in what is now southern Nigeria, which began setting curricula requirements and administered grants to the mission societies. By 1914, when north and south were amalgamated into one colony, there were fifty-nine government and ninety-one mission primary schools in the south; all eleven secondary schools, except for King's College in Lagos were run by the missions. In 1914, there were 1,100 primary school pupils in the north, compared with 35,700 in the south; the north had no secondary schools, compared with eleven in the south. By 1920s, the pressure for school places in the south led to increased numbers of independent schools financed by local efforts and sending of favourite sons overseas for more advanced training. In 1916 Frederick Lugard, first governor of the unified colony; set up a school inspectorate. Progress in the nation's education was slow but steady throughout the colonial era until the end of World war ll. The earliest moves towards higher education in Nigeria could be traced to as far back as 1936, when Yaba Higher College was established. The institute was christened a Technical Institute in 1947. By 1950, the country had developed a three-tiered system of primary, secondary, and higher education based on the British model of wide participation at the bottom, sorting into academic and

vocational training at the secondary level, and higher education for small elite destined for leadership. By the 1980s, the central importance of formal education has been so recognized that it soon became "the largest social programme of all governments of the federation", absorbing as much as 40 percent of the budgets of some state governments (Clark and Sedgwick, 2004; Onlinenigeria, 2008; Mkpa, 2004).

2.5.2 Administration and Training Qualifications in Nigerian Education System

The management of education in Nigeria is based on the Federal administrative system by which the country is ruled; while the basic educational policy relating to structure, school year and curriculum at various level of education is determined centrally, the state and local governments have administrative controls over the secondary and primary schools respectively. Higher education is within the control of the Federal government while state owned higher institutions are managed by the various state governments. The Administrative bodies and Agencies involved in the Nigerian education system include:

1. The Federal Ministry of Education (FME) - coordinates the education policies and procedures through the National Council on Education (NCE).
2. The Joint Consultative Committee (JCC) - acts as an advisory committee both the federal and state ministries of education, higher institutions and other education agencies; the body is an independent body of professional educators.
3. The National Education Research and Development Council (NERDC) - established by the federal government in 1972 to encourage, promote and coordinate educational research programmes in the country. NERDC provides significant data on Nigerian educational problems and its work informs the various reforms in the education system.
4. The National Board for Technical Education (NBTE) - provides standardised minimum guide curricular for technical/vocational education and training; establishes minimum standards in polytechnics, technical colleges and other technical institutions in the country. The body provides a full listing of approved polytechnics and technical colleges in Nigeria and also administers the funding of Federal.

5. Government owned polytechnics. The NBTE is also vested with the responsibility for the supervision and regulation of programmes offered by technical institutions at secondary and post-secondary levels through the accreditation process.
6. The National Universities Commission (NUC) - accredits and approve university education programmes; provides a full listing of all approved or recognized federal, state and private universities. This agency operates under the Federal Ministry of Education.
7. The National Commission for Colleges of Education (NCCE) - coordinates all facets of non-degree teacher education in Nigeria.
8. The West African Examination Council (WAEC) and National Examination Council (NECO) - these agencies are responsible for conducting the Junior and Senior School Certificate Examination (SSCE).
9. The National Business and Technical Examinations Board (NABTEB) - organises and conducts the National Technical Certificate (NTC), the National Business Certificate (NBC) Examinations; and the advanced level versions of these examinations in a number of discipline or trades (NQAI, 2008).

2.5.3 Attainable Qualifications in the Educational Framework

NQAI (2008) lists the attainable qualifications in the Nigeria educational frame work as follows:

2.5.3.1 Lower and Upper Secondary Schools

Junior Secondary School Certificate/ Certificate of Basic Education (JSSC)/CBE.
West African GCE '0' Level

West African GCE 'A' Level

2.5.3.2 Vocational Education and Training Upper Secondary

National Technical/Business Certificate

Advanced National Technical/Business Certificate

2.5.3.3 Vocational Education and Training Post Secondary

National Vocational Certificate (NVC)

National Innovation Diploma (NID)

Monotechnics, Polytechnics and Colleges of Education (MPCE).

2.5.3.4 Higher Education and Training

Universities Matriculation Examination (UME)
Ordinary National Diploma (OND)
Higher National Diploma (HND)
Full Professional Diploma (FPD)
National Certificate of Education (NCE)
Technical Teachers' Certificate (TTC)
Bachelor's Degree
Postgraduate Diploma (PGD)
Master's Degree
Master of Philosophy
Doctor of Philosophy

2.6 Education Reforms in Nigeria

In the 1980s and 1990s, the government implemented series of education reforms which have significantly altered the system inherited from the colonial masters. Before the changes took effect, secondary school education closely resembled the British system consisting of GCE 'O' levels followed by two years GCE 'A' level courses. The formal education system is now patterned as 6 years of primary school; 3 years of junior secondary school; 3 years of senior secondary school, and 4 years

of university education leading to a bachelor's level degree in most fields (6-3-3-4). The 6-3-3-4 system has recently been re-structured into 9-3-4 making education compulsory up to the junior secondary school level (NQAI, 2008). The GCE 'O' and 'A' levels have largely been phased out, and replaced by the Junior and Senior Schools Certificates. The education reformation also brought about changes in the secondary curriculum, junior secondary school now offer both academic and prevocational streams. Graduates of junior secondary schools may proceed into either the senior secondary school, technical/vocational college or the teacher training college. Curricula at all levels of education have also been reformed to put more emphasis on science and technology. The Federal Government of Nigeria (FGN) recently approved the establishment of Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) to provide alternative route to higher education. They have been established due to the insufficient facilities in higher education institutions to accommodate the myriad of secondary school leavers and to compensate for the low participation of the private sector in skills training. The VEIs and IEIs are private institutions that will offer vocational, technical or professional education and training at post-basic and tertiary levels on part and full-time basis. The main goal of the VEIs and IEIs is to equip secondary school leavers and working adults with vocational skills and knowledge; their curriculum and training will cover multidisciplinary areas that will prepare learners for jobs in most industries and award certificates and national diplomas. Agbebi, (1984) and Ehiametalor, (1993) observe that common feature underlining educational reforms in Africa is the introduction and expansion of technical and vocational education in the general school curriculum due to the increased realization of the importance of technical and vocational education in national development.

2.7 Vocational and Technical Education in Nigeria

Vocational Education and Training is defined as all forms and levels of the educational process involving, in addition to general knowledge, the study of technologies and related sciences, the acquisition of practical skills, know how, attitudes and understanding relating to occupations in the various sectors of economic and social life (Tappin, 2002; UNESCO, 2005). Oranu (1992) and David (2008) view vocational education as that skill-based programme designed for sub-

professional level education and based on a specific vocation, so that the knowledge acquired prepares the trainees and enhance their performance in the field of work. Technical education on the other hand, facilitates the acquisition of practical and applied skills as well as basic scientific knowledge. The major difference between the two terms is that, whereas vocational education is designed for a particular vocation, technical education does not target any particular vocation but gives general technical knowledge. Dike (2006) notes that Vocational education is designed to offer training to improve individuals' general proficiency; especially in relation to their present or future occupations. Oni (2007) opines that Vocational education could be regarded as that aspect of education which provides the recipients with the basic knowledge and practical skills needed for entry into the world of work as employees or as self-employed. Vocational education nurtures skills that are necessary for industrial, infrastructural and economic development and thus assists in building a self reliant nation; technical education is composed of theoretical and practical instruction, such instruction is usually given to those who need to be employed in commerce and industry or in any type of enterprise which involves the use of tools and other machinery for their operational service (Adetoro, 1985). Vocational and technical education is focused in building a self-reliant society. Realising the importance of science as a necessary tool for technological development; Oni (2006) observes that in the 1970s, the teaching of science began to assume significance in the curricula of primary and junior classes in secondary schools. Colleges of technology and polytechnics were established and more attention was focused on university of technology. The efforts were directed towards striking a balance between conventional tertiary and science/technical-oriented programmes. According to Oranu (1992), the history of the Nigerian technical education system cannot be discussed without referring to the various examinations and their regulatory bodies. Through their syllabi, the examination bodies have dictated the curriculum content and method of evaluation. The Royal Society of Arts (RSA) and the City and Guilds of London Institute (CGLI) controlled the craft-level technical education through the conduct of examinations in commercial and technical subjects. The West African Examination Council (WAEC), a multi-national examining body embracing the Gambia, Ghana, Liberia, Nigeria and Sierra Leone was established in 1952; the RSA and CGLI continued to regulate the

study of technical subjects even after the establishment of WAEC. It was in 1960 that WAEC started acting as an agent for the various bodies. The objectives of RSA and CGLI among other things were to certify students in technical institutions (formerly trade and vocational centres); however, only the theoretical aspects were examined by CGLI in most of the trades. By the external regulation of what was taught in the technical institutions, the curricula were not structured to meet specific development needs of the nation. In addition, the trainees were given scanty of no general education to supplement their chosen trades. In December 1972, WAEC took over the conduct of examinations in some technical and commercial subjects from RSA and CGLI. Within this structure, the federal government approved that the CGLI be supplemented with a qualification known as the Federal Crafts Certificate (FCC) issued by the technical colleges. The FCC incorporated practical aspects of the trades examined by the CGLI; after the take-over, in 1978 WAEC introduced practical sessions into its examinations. However, more general education was not introduced into the curriculum of the trades offered in the technical colleges; thus, the graduates of these colleges were unable to secure admission in tertiary institutions. For this reason, the image of technical education remained tarnished as a programme for academically weak students. The National Council on Education (NCE); approved the national curricula and module specifications proposed by the National Board for Technical Education (NBTE) for the Technical/Commercial Studies Certificate programmes in technical colleges in 1985. The main focus of the reform includes:

- The mandatory inclusion of general courses in English language and communication, mathematics, integrated physical science and social studies into the technical education curriculum.
- Enrolment of Industrial staff and other categories of itinerant craftsmen at the technical colleges to take specific trade modules relevant to their fields.
- Integration of trade theory and practice in form of trade calculation and trade science into the curriculum.

Further to the restructuring, the National Business and Technical Examination Board (NABTEB) was established in 1992 and it introduced a new scheme in 1995 to replace the 1985 reform. NABTEB was charged with the conduct of technical and

business examinations hitherto conducted by the RSA, CGLI, and WAEC in Nigeria. The body based its examinations on two parallel syllabi - NBTE modular curriculum and the modified WAEC syllabi and offers examinations in four trade areas which include construction trades, engineering trades, miscellaneous trades and business studies. One of the main objectives of the NABTEB was to make their qualification, the National Technical Certificate (NTC) equivalent to that of the senior secondary school; so that the graduates of technical colleges could secure admission into relevant tertiary institutions such as polytechnics and universities. This development removed the previous problem of low esteem accorded to the graduates of technical colleges who could not enrol for further education due to inadequacies in the content of their general education. General education subjects and related trade subjects are now made compulsory to all candidates in consonance with their chosen trades. The National Joint Admission and Matriculation Board (JAMB) have since accepted the National Technical Certificate (NTC) and the National Business Certificate (NBC) as being adequate for the purpose of enrolling for courses in the various higher institutions across the country. Nigerian seemingly well structured and closely monitored educational system should normally have enabled and encouraged the nation to produce sufficient number of seasoned craftspeople to meet the needs of the local industries and the challenges in the global economy but the reverse seems to be the case. Bolaji (2007) notes that the Nigerian educational policy has not been capable of providing the needed manpower development to stir the nation's socio-economic exigencies left by the colonial masters. The policy issue though seems well laid-out but non-directional due to incessant changes. It has become a tradition to abandon policy mid-stream. Okafor (2000) observes that there is total decline in the quality of training facilities at all levels of Nigerian education system. Many technical and vocational training institutions do not have the necessary facilities for effective teaching and learning. (Odia and Omofonmwan, 2007; Essien, 1998; and Olaitan, 1996) identify lack of necessary facilities such as tools and adequate workshops to hinder in-depth practical instruction. The industrialization of the nation is being delayed due to the inefficiency of the technical education system. Akpan (1999) submits that technical and applied skills would not be effectively acquired by mere reading of handout and pictures of simulated tools and equipment. Oni (2007) advocates the need for proper funding of technical and vocational education. Acute

shortage of suitable, trained and qualified vocational teachers is another identified bane of Nigeria Technical and Vocational Education (Aina, 1991 and Okorie, 2000). Other challenges of the Nigerian vocational educational system as identified by Oranu (1998) include problems related to curricular which include inadequate emphasis on pre-vocational subjects at the primary and junior secondary levels, shortfall in recruitment and exodus of teachers, low student morale, examination-oriented approaches to curricular implementation and inadequate political will. The general orientation of the Nigerian educational system seems to lay more emphasis on paper qualification than on acquisition of marketable skills; hence the trainees concentrate on accumulation of qualifications at the expense of acquisition of skills.

2.8 Philosophy and Structure of Vocational-Technical Education in Nigeria

2.8.1 Philosophy: Nigerian National Policy on Education NPE (2004) describes vocational education as a programme of educating citizens below college grade. It is organised in such a way that the learner is prepared for entrance into a particular chosen vocation or to upgrade employed workers. National Directorate of Employment NDE (1987) classifies vocational education to include such divisions as trades and industrial education, technical education, agricultural, distributive education and home economics. This type of education is distinguished by its more specialized nature. Technical education on the other hand, is described as a type of education that emphasizes the learning of a technique or technical procedures and skills, and it is aimed at preparing technicians, usually above secondary school level but not necessarily leading to award of a degree. NPE (2004) enumerates the aims of technical education among others to include the following:

- Provision of trained manpower is applied science, technology and commerce, particularly at sub-professional grades.
- Training young men and women to have an intelligent understanding of increasing complexity of technology.
- Impartation of the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant.

- Giving an introduction to professional studies in engineering and other technologies.

Purpose of Vocational Education is highlighted to Include;

-preparation of the individual to render certain specialised services of economic value and for the economic growth of the nation.

-Impartation and inculcating of specific vocation or skills.

2.8.2 The Structure.

Four types of Education Institutions outside the university have been identified to provide Vocational and Technical Education. These include;

- the pre-vocational and vocational schools at post-elementary levels;
- the technical college;
- the polytechnic
- colleges of technical teacher education at the post-secondary level.

According to NERDC (1998), vocational education from a broad perspective is that form of education, which is obtainable at the technical colleges. This is equivalent to the secondary education but designed to prepare individuals to acquire practical skills, basic and scientific knowledge and attitude required as craftsmen and technicians at sub-professional level. Pre-vocational Education is that aspect of pre-vocational training offered to students at the junior secondary level, and it is for the purpose of;

- acquiring basic technical skills
- exposing youths to have an intelligent understanding of the increasing complexity of technology.

The goals of vocational education happen to be the same as those enumerated for Technical Education. The only snag as at now is that the students of Junior Secondary Schools who are supposed to be acquiring some basic technical skills are doing little or nothing at all that could expose them to basic technical skills or afford them the privilege of being exposed to any intelligent understanding of the increasing complexity of technology. Most post-primary schools and even Technical

schools lack basic infrastructural facilities; such as well equipped workshops and laboratories that can facilitate the teaching of basic technical concept. This is due to poor funding and non-adherence to the curriculum 'set-out' in the National Policy on Education.

In pursuance of the stated goals of technical Education NEDRC (1998) stipulates that:

- The main features of the curricular activities for technical college shall be structured in foundation and trade modules.
- The curriculum for each trade shall consists of four components which includes;

-General Education
-Theory and related courses,
-Workshop practice and
-Industrial training/production work.

It was suggested in the National Policy on Education that trainees completing technological education programme should have three options:

- Secure employment either at the end of the whole course or after completing one or more modules of employable skill.
- Set up their own business and become self-employed and be able to employ others.
- Pursue further education in advance craft/technical programme and in post secondary (tertiary) technical institutions such as polytechnics or colleges of education (technical) and universities.

Every state were also encouraged to ensure that at least one of its technical colleges offer advance craft courses in order to train and prepare master craftsmen for supervisory positions on industry and in teaching. A Model of Implementation of the National Education concept and structure of the Nigerian system of Education is shown in Fig.2.1

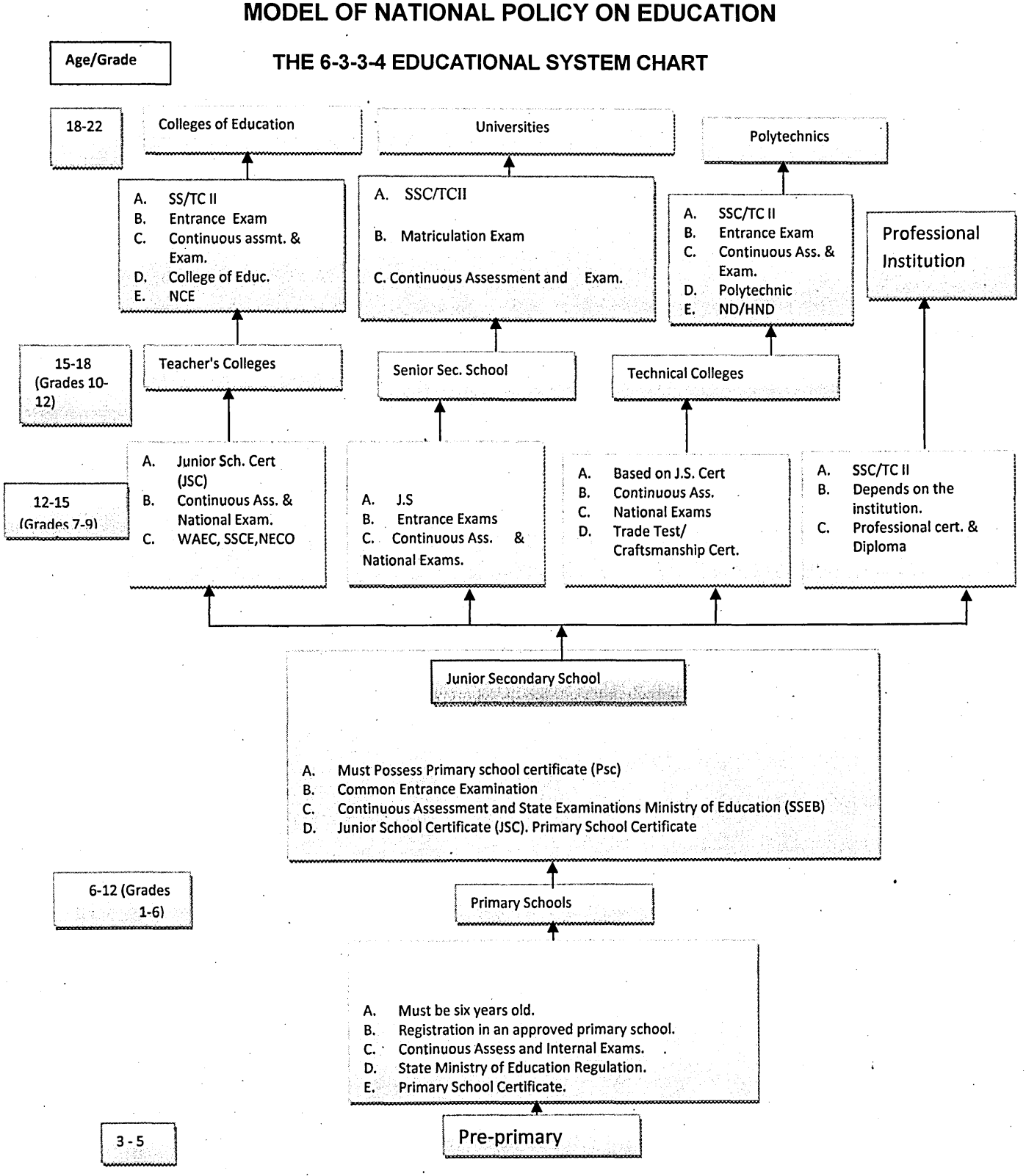

Figure 2.1: Model of Implementation of the National Education concept and structure of the Nigerian system of Education. (Source: Awe 2004)

Awe (2004) observes that a critical analysis of the above model reveals that emphasis on training of craftsmen is embedded in the Technical College curriculum but there is no specified path or formal centres for Vocational Training. The present orientation in most Technical Colleges shows that the focus is the preparation of students for further education in tertiary institutions. The National Policy on Education, section 4, clause 22, states that students who complete Junior Secondary school shall be streamed into - the Senior Secondary, the Technical College, an out-of-school vocational centre; an apprenticeship scheme in the ratios of 60:20:10:10% respectively.

The reality of what is obtainable presently indicates that, the number of Technical colleges available is grossly inadequate to absorb 20% of the junior school graduates because of the enormous capital needed due to the practical contents of the instruction. Many of the then prestigious 'trade centres' later christened 'Technical Colleges' are now becoming glorified secondary schools due to under-funding and gross reduction if not total elimination of the practical work contents in their instructional modes. The Federal Government Technical Colleges are now called Government Science and Technical Colleges. The vocational training and apprenticeship schemes specified by the NERDC is left uncontrolled and without regulation. These aspects of manpower training are mainly left to individuals or companies, majority of who prefer to engage experienced hands rather than get involved in the hardous, expensive and time consuming ventures of training and developing fresh hands. The National Open Apprenticeship Scheme though a good policy and more in the right direction needs to be vigorously pursued in a more organised manner; in order to meet the immediate and future much needed manpower of the nation.

2.9 National Vocational Qualification Framework (NVQF)

In November 2004, the NBTE organised a two-day seminar with participants drawn form the public and private sectors including, the British NVQ consultants from UK, Federal Ministries especially Education, Science and Technology, Labour and Productivity, Professional Bodies, and representatives from colleges of Technology. The major goal was to deliberate on the possibility and need for the formulation of a

National Vocational Qualification Framework (NVQF). The forum provided an opportunity for stakeholders in the Technical/Vocational Education and Training (TVET) sector to brainstorm on developing appropriate methodologies for assessing, monitoring and evaluating skills in technical and vocational qualifications (NVQs) and qualifications and proof of a person's ability to do specific jobs.

The seminar was organised in recognition of the fact that a workable, nationally accepted and appropriate NVQF can only be developed through wide consultation with relevant stakeholders in Nigeria in order to chart a road map for its implementation (NBTE 2004). The communiqué issued at the end of the forum underscores the need for a National Framework for training of skilled workforce in every sector of the economy. The NBTE forum gave birth to a modified model shown in Figure 2.2; which accommodates the IEIs and VEIs. A close observation of the model depicts a hurriedly advocated proposal which is not well-thought-out and still exhibits the age-old marginalization of vocational education prospects. Relevant and pertinent questions that could be advanced on the model include: What is the background of those to be streamed for the IEIs and the VEIs? How would the proposal exacerbate or ameliorate the long drawn agitation for parity between polytechnic and university education graduates? Are the polytechnic now being relegated to advanced vocational institutes order that Technology education institutes? What link exists between the Upper Secondary, Technical Colleges and the Vocational and Innovation Enterprise Institutes and the Colleges of Education? What roles will the industrial sectors which as of now are less concerned with training going to play in the curriculum and implementation of the proposed IEIs and VEIs? Would the Polytechnics and Monotechnics be solely owned by private investors or by the government or is it going to be jointly managed? What is the assurance that it will not be 'business as usual' - all theory and no practice? How would this new concept not be plagued with the same malaise of mid-stream abandonment and neglect; as is the case with the previous or existing technical/vocational training policies? What strategy is to be employed or embedded in the new proposal to attract the Nigerian youth who as of now are least interested in taking to skill acquisition? What is the place of the age-old apprenticeship scheme in the new proposal?

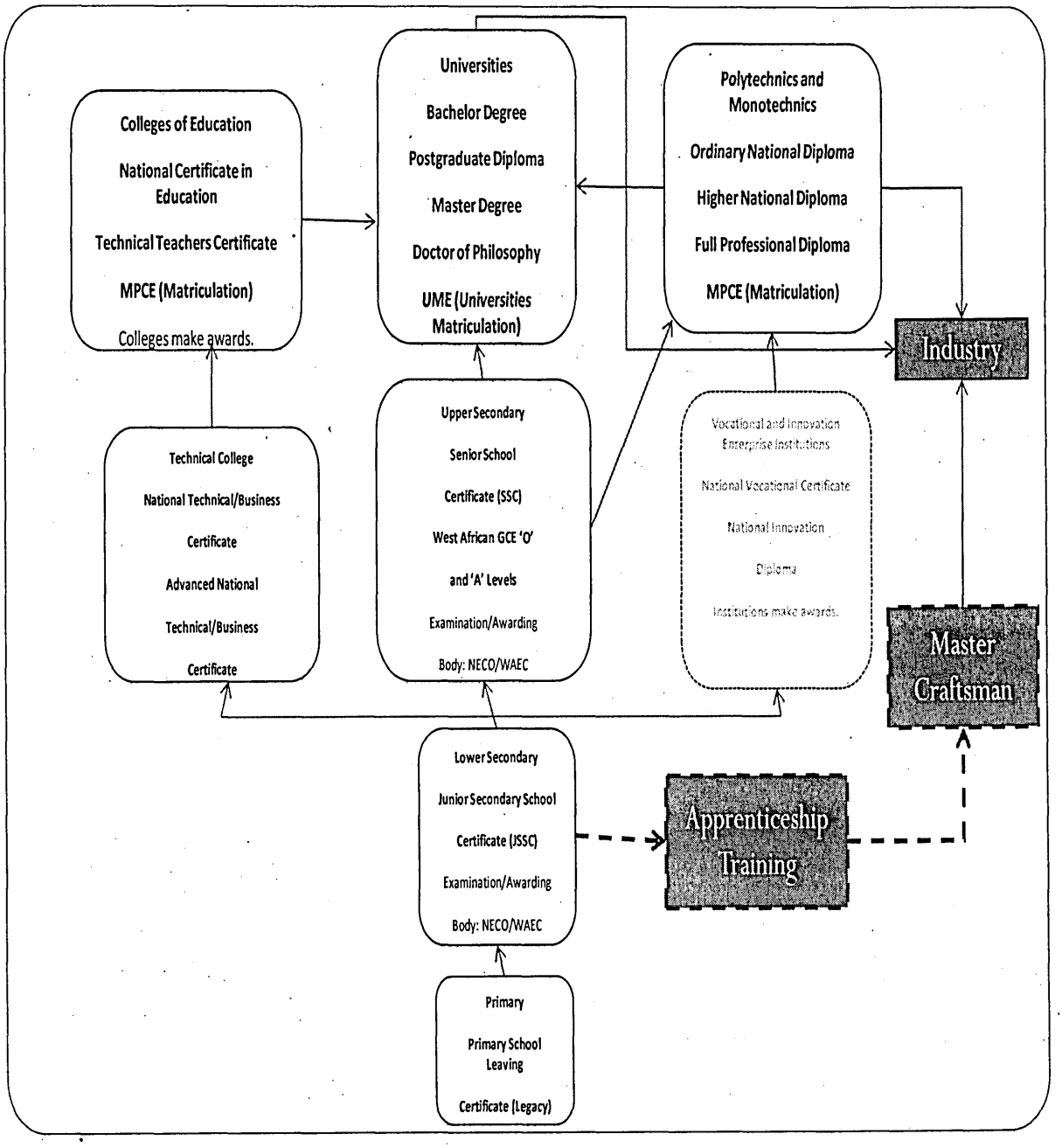

Figure 2.2 - NBTE model of Nigerian Education system
Source: Education and Training System in Nigeria (2005)

An in-depth analysis of the foregoing and similar questions with the view to providing workable solutions is imperative; if the catastrophic pit-falls that plagued the previous policies on Technical/Vocational Education and Training in the country is to be avoided.

There is need for the formulation of a workable and result oriented Framework which will be comprehensive and workable enough to tackle the lapses and ineffectiveness identified in similar policies in the past. Thus the relevance of this research which seeks to formulate a 'functional Framework for crafts skills training and development'; and which also could be generalised for selected trades in the construction sector of the Nigerian economy.

2.10 Problems of Vocational and Technical Education in Nigeria

Bolaji (2007) observes that since the colonial era, premium has been placed on education as an instrument of socialization and national development; thus, the Federal Government of Nigeria has accorded education a prominent place as pivotal to economic and national development. However Dike (2006) informs that while vocational education has continued to thrive in many societies, Nigeria seems not to be taking it seriously. Although vocational and technical education seem deficient in 'citizenship or leadership training' (Friedman, 1982); trainees could be provided with necessary skills that could make them productive entrepreneurs and inculcate innovative and creative ideas that would increase personal freedom for individuals and economic freedom for the nation. The construction industry in particular and the society at large need confident and competent tradesmen such as bricklayers, carpenters, plumbers and the like; thus it will be detrimental to the social and economic well-being of the nation to neglect vocational education as this will be rubbing the nation of the impact the graduates would make on the development of the nation. The current preoccupation with university education and paper qualification in Nigeria stagnates economic opportunities of those who are more oriented toward work that academic. Dike (2007) observes that many of the so-called "expatriate engineers" who are being paid huge sum of money in dollars to build high-rise buildings, roads and bridges in Nigeria are graduates of vocational colleges, yet the nation seem not taking vocational education and training seriously. It is a well documented fact that Nigeria's higher institutions theoretical approach lacks the tools to give students the skill employers need (Bolaji, 2007; Agabi, 1992; Akpan, 2000 and Oranu, 1992). Nigeria is lagging behind in preparing her workforce for the challenges of the rapidly changing global economy. The nation must, therefore, invest intensely in education with special attention given to vocational and technical education. There is need for some form of school-work-based

learning incorporated in the curriculum of higher institutions across the nation as an integral part of national development strategy as this could reduce the burden of unemployment and poverty on the people. Youth unemployment in Africa has reached alarming proportions. Since most African countries gained political independence; there has been increased population growth, rapid expansion of the education systems, high levels of rural-urban migration, political conflicts, and worsening economic performance (Ndegwa, 1985; World Bank, 1990). These factors have led to the problem of unemployment especially among youth leaving various educational institutions. The African governments' efforts to solve the youth unemployment problem have included the vocationalizing of education systems (UNESCO, 1996). Despite this vocationalization, unemployment persists due to inadequacy in implementation of the Technical and Vocational; Education policies. The United Nations Educational Scientific and Cultural Organization (UNESCO, 2007) has indicated that revitalizing Technical and Vocational Education and Training (TVET) is among the ways to improve economic opportunities for the youth. Ehiametalor (1993) and Salami (2011) observe that the major defect in Nigerian education is the strong bias toward the traditional literary and academic subject which is reflected in a lack of respect on the part of the public for manual labour. It was recommended that the most effective way of correcting the anomaly would be to introduce manual/vocational subject as an obligatory ingredient of primary and secondary education. Introduction of technical streams in some secondary schools leading to a school certificate examination which include technical subjects is also advocated.

Other observed relevant challenges of Technical, Vocational Education and Training in Nigeria include:

- Socio-economic context which culminates in lack of peace due to political instabilities and continued economic decline; decline in enrolments in education and training, abandonment of schooling all-together in some instances.
- Low Status Syndrome - TVE suffering from a lower status compared to general education; a legacy left by the colonial masters whereby the colonized people were expected to be workers while general academic education was reserved for the masters who mainly occupied white colour jobs.

- Teacher Education is another salient challenge - the capacity of the technological manpower in any nation can only be measured against the teachers available; there is presently an acute shortage of experienced and practical oriented technical teachers in Nigeria.
- The problem of cooperation with Enterprises is also a crucial factor - it is a generally accepted fact that for TVE programmes to worth its salt, be of good quality and relevant, they must reflect and inculcate real situation in the world of work. For this to be attainable, it is inevitable that cooperation with existing enterprises, which have the latest technologies and production processes, must be maintained; the present situation in Nigeria where the industry sector or enterprise shows little or no interest in manpower training and development would have to be adequately tackled.
- Favouritism and nepotism - this has been the bane on the implementation of many laudable policies over time in many African setting to which Nigeria belong. Round pegs are hardly put in round holes. Many of the past policies crumbled during implementation because those in government will choose people, not based on merit but on quota, religious or tribal politicking .
- Corruption and Greed - Funds earmarked for implementation of policy programmes are most of the time viewed as a share of the national cake by privileged few upon whose shoulders the mantle of implementation falls; as a result of selfish consideration, the money meant to be spent for public good end-up in private pockets.
- Insincerity and hidden Agenda - Policy makers are sometimes insincere both in the formulation and implementation of policies. The insincerity and hidden agenda may manifest itself in the siting of an institution at a location that is awkward and incongruous with the overall objective of the proposal.
- Absence of Health and Safety Training - The Curriculum of Technical Education in Nigeria seems to lay more emphasis on caring for tools and equipment than the health and safety issues for the operatives. This act of omission might be among the hidden reasons why most youth are not indicating interest in attending vocational institutes to acquire employable skills.

All the above mentioned problems though socio-cultural in nature have bearing on the success or failure of implementation of Technical and Vocational Education and Training in Nigeria.

2.11 Apprenticeship-past and present

Akindoyeni (2005) reviews that skill acquisition in the building trades had been mostly through the informal system of apprenticeship. Apprenticeship schemes as a method of skill acquisition had its root in the pre-literate Nigeria where the principal vocations is agriculture. At the time, vocations such as iron-smelting and smothering, dress-making were learnt from three to five years. Increase in population and sophistication in the country brought about a New World, which demands new responses from men and institutions. This informed a change in vocational training. The attendant specialization that was demanded by this phenomenon dramatically affected education; and the result was reasonable, because the industrialized society depends on the institution of education for its very existence and its capacity to progress and meet the growing need of its society. Thus, a period of the unwritten history covered an epoch of craftsmanship and manual training. What followed was an epoch of craftsmanship to manual training, followed by an intermediary period when specialised schools of vocational and industrial training were established. The second period of development of vocational education started when the initiative was taken by some mercantile houses like the Royal Niger Company, John Holt, Liverpool and some of the government Departments like the Railway, the Marine and the Agricultural, Forestry Schools in Ibadan, Akure and Benin-City in Western Nigeria, Umuahia in the Eastern part and Samaru in the North. As the economy improved, the need and opportunities for skill acquisition became more glaring. The government acted in a positive way with the establishment of technical trade schools and trade centres. There were other quasi government institutions such as the Trade Vocational Improvement centres established in 1965 in the then Northern Nigeria, the ceramic training centres in the Western State, the Domestic Science Centre in Lagos. Most of the institutions mentioned above were established as a result of a realization of the inadequacy of the formal education system to satisfy the employment demands of the time i.e. the need for skilled labour and the resultant

unemployment of young school leavers that resulted there from. Adeniji (1994) however observed that the various Institutions established then were not able to supply the large number of skilled tradesmen badly required in the building and construction industry. The number had to be supplemented by the informal apprenticeship scheme. The informal apprenticeship system was usually such that the master craftsman gave on-the-job training to trainees but without much needed theoretical background to whatever trade that was being imparted. It also imposes a duty on the master craftsman to see to the social and moral upbringing of the trainees. The factors responsible for the little or no needed theoretical learning include the low level of education of trainees, low technical knowledge and education of the trainers and lack of equipments and facilities for training. The age-old apprenticeship schemes which was known for its effectiveness and thoroughness in producing competent workforce has however fizzled away within the Nigerian economy and has given way to a sort of a 'quick-fix' or a 'crash-programme' producing 'half-baked' tradesmen who are incompetent and unproductive. The present generation of Nigerian youth no longer enlist on apprenticeship or vocational training but either prefer loafing about or take to other quick money-making ventures.

2.12 Artisans and Craftsmen

Abdulgafaru (2003) defines an Artisan or craftsmen as a person skilled at manually beautiful things or a person who does something very well and with great attention to detail, aesthetic, creativity, such as basketry, woodworking, blacksmith etc. Crafts are as old as human history. Originally, fulfilling utilitarian purposes, they are now a means of producing objects of intrinsic or aesthetic appeal. Craftwork formed the basis of town and city economies throughout the west until the advent of the Industrial Revolution in the eighteenth and nineteenth century.

2.12.1 Crafts and skills acquisition and their importance in Industry.

Crafts are creative hobbies and are primarily engaged in or practiced in the home with a minimum of specialized equipment. Crafts are still very relevant in our world, which is becoming increasingly mechanized and standardized. Crafts give people

the privilege of working with their hands and thus able to express their individuality. Leedham (2002) reveals that crafts are used in occupational therapy; as a patient might be taught a craft to develop weakened muscles, or get re-orientated or helped to gain mastery in the use of artificial limb. Emotionally disturbed person might be taught a craft that could relieve him of his 'tensed-up' feelings. Craftwork also provides the disabled with purposeful activity that diverts attention from his disability to do something well. An apprentice simultaneously acquires technical capacity and the act of communication with his fellows; and through practice at his trade with the same group of persons he learns to understand the attitudes and ideas of his companions. Technical skills manifest as a capacity to manipulate things, in the service of meeting human purposes and needs, while social skill exhibits self as a capacity to receive communication from others, and to respond to same in such a manner that promotes congenial participation in a common task. In an ideal situation, an apprentice develops technical and social skills simultaneously.

2.12.2 Importance of skills in industry

The skills of all the role-players in an industry determine the quality of its products. The type of the industry, however, determines the type of the mental and physical skill abilities and competences an apprentice must acquire. In the building and construction industry, semi-skilled and unskilled workers form a large part of the labour supply and they perform various tasks, which eventually determine the quality of products. Adeniji (1994) opines that the training and development of these categories of workers, therefore, is a necessity for continuous production of good quality work and smooth flow of activities on site. The image of a company reveals the technical and social skills of its workers and the ability, skills and dexterity of workers is revealed in the product of the company. It is imperative and expedient therefore, that in any industry, every individual worker should have a way that the skill of communication and co-existence and working with others is achieved. In the view of Lugujjo and Manyindo (1993), a country's technical and vocational training system is a decisive factor determining the competitive strength and level of development of its economy. The level of competence of a country's skilled workers and technicians is centrally important to the flexibility and productivity of its labour force. Skilled workers and technicians enhance the quality and efficiency of product

development, usage, production and maintenance and they supervise, train and develop new hands and workers with lesser skills. The development of a skilled labour force in a nation makes for important contribution to national development; such competent skilled workforce would be able to apply science and technology in the transformation of raw materials into goods and services. A well trained, capable, seasoned and knowledgeable skilled workforce is therefore the secret to national development and economic success of any nation.

2.12.3 Importance and relevance of skill in the Nigerian construction industry

In an Appraisal Report on Skills and Vocational Education Project in Nigeria, African Development Fund ADF (2005) notes that Nigeria as a country undergoing economic reform needs a productive, competent, and flexible workforce to further her economic development. The demand for skilled workers and qualified technicians is already acute and will become even more intense as the industrial sector becomes the dominant provider of employment. The vocational and technical education (VTE) sub-sector is however unable to respond to the changing labour market requirements because of its present supply-driven orientation. Its curricular, instructional equipment, teaching methods, and evaluation techniques are noted to be outdated, leading to inappropriately low internal and external efficiencies. Effective skill acquisition strategy is therefore relevant to the nation's situation. Akindoyeni (2005) further identified the importance of crafts in human endeavour, especially in the construction industry. He opines that all activities on the building sites are carried out using hand-held tools, utilized by craftsmen. With industrial revolution, most other industries became mechanized or automated. Precision required in the finished work, slowed down the automation in the construction industry, hence automation in the industry did not move beyond the mechanization of earthworks, prefabrication of components and the vertical/horizontal transportation of materials and components on the site. He observed that, the placement and final assembly is, till this very time carried out by human beings (craftsmen). The craft still maintains its territory, though mostly by inexperienced and incompetent men. Obiegbu (2005) highlights the importance of crafts in that; the construction industry is of considerable economic importance to Nigeria. Construction is a complex process, spanning design, production, maintenance and heritage work. The majority of skilled

workers (currently about 60 percent) who are-self employed craftsmen form the backbone of the construction industry. The importance and relevance of skills is further evident in that the construction industry's skill needs are complex and heavily dependent on the type of project involved. Good craft skills are crucial to the successful completion of any construction contract. The need for a 'Best Practice Framework' for adequate training of capable and competent trades' people can therefore not be over-emphasized.

2.13 Summary

This section gave an in-depth overview of the education and training system in Nigeria; touching on the history of general education, administration of training system, training qualifications and the various education reforms embarked upon since the nation's independent. The meaning of vocational and technical education, philosophy and structure; and the policies adopted by the country towards achieving her objectives for Technical and Vocational Education (TVE) were also discussed. The section also reviewed the problems, relevance and implication of vocational and technical education for the Nigeria economy. The past and present situations with the various vocational training techniques were highlighted. The facts emanating from the various literatures reviewed on Technical/Vocational Education and Training in Nigeria suggest that even though the country has ventured into different reforms and policy adjustments towards chatting a right path; the achievement so far, is still far from achieving the desired haven. Such a research that borders on charting a map towards the 'Best Practice Training Framework' is therefore pertinent in the nation's present situation.

Sub-Section 4

2.14 Characteristics of Craftsmen's Training, Education and Development

The term education or Training has been defined differently by various authors. According to Houle (1979), education is a process by which individuals seek to improve themselves or their society by increasing their skill, their knowledge or their sensitiveness. Matheson and Grosvenor (1999) defines education as a planned

intentional preparation; an aid to coping, and a way of short-circuiting personal experience by drawing upon the accumulated experience of others. This however, excludes the informal or unplanned learning from the concept of education. Manpower Services Commission (1981) defines education as activities which aim at developing the knowledge, skills, moral values and understanding required in all aspects of life, rather than as knowledge and skill relating only to limited field of activity. Reid and Barrington (1999) opines that Training and Development is essentially making learning happen and that learning can and does naturally occur as a by-product of everyday experience. Learning must yield the ability to do something that was not previously within the learner's capability; that is, it a process whereby a new capability is attained. Random learning through everyday experience may however, be unpredictable and slow in performance. MPS (1981) considers Training as a planned process to improve proficiency, modify attitude, knowledge or skill behaviour through learning experience to achieve effective performance in an activity or range of activities. The purpose of education is to provide the conditions essential to young people and adults to develop an understanding of the traditions and ideas influencing the society in which they live and to enable them to make a contribution to it. The purpose of Training is to develop the abilities of the individual and satisfy the current and future needs of the organisation or industry. Training is about the acquisition of knowledge, skills, and abilities (KSA) through professional development; it is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviours to enhance the performance of employees. It is an activity leading to skilled behaviour (Naukri Hub, 2007). The Institute of Personnel Management IPM (1982) classifies learning into three: namely; the acquisition of knowledge (cognitive learning); the development of skill (psycho-motor learning) and the establishment of attitude (affective learning).

In the context of the Nigerian National Policy on Education; NERDC (2004) reveals that, vocational training and education is characterized by Impartation and Inculcation of specific vocation or skills and preparation of the individual trainee to render specialised services of economic value for the economic growth of the nation.

If there is proper focus and organised plans for training and development of Tradesmen and Artisans in the Nigerian Economy, then the present trend of depletion in the stock

or supply of capable and seasoned artisans will be mitigated through a constant supply of competent skilled craftsmen to the construction nation's sector.

2.15 Objectives of Training

Training objective may be regarded as intent, expressed in the form of a statement, describing a proposed behaviour change in the learner which can be observed, described, and measured; specifying what exactly the learner is expected to do at the end of the training. It identifies the tasks, procedures and techniques that he should be able to carry out, the standard of performance required and the circumstances in which the work will be undertaken (Mager, 1984; Davies and Davies, 1998). Training objective is one of the most important parts of training program, it is essential for designing effective training. Without a clear understanding of the purpose and expected results of the training, things can go badly wrong; if clearly defined aims and objectives are lacking, there is no sound basis for the selection or design of materials, content and methods. Resources are always limited and training objectives actually lead to the design of training. It provides the clear guidelines and develops the training program in less time because objectives focus specifically on needs. It helps in adhering to a plan, informs the trainee of what is expected of him at the end of the training program. (JSB, 2006; Naukri hub, 2007). Figure 2.3 illustrates the benefits and relevance of training objectives.

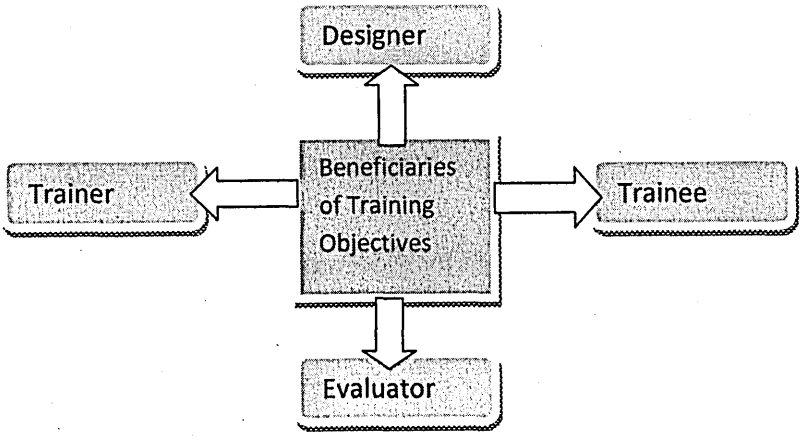

Figure 2.3: Significance of Training Objectives

Source: Naukrihub (2007)

According to Naukrihub (2007), training objectives are of immense significance when viewed from a number of stakeholder perspectives.

- **Designer** - Training objectives make for appropriate design of the training program, helps designer to be aware of what is to be achieved in the end and hence choose adequate content, material and methods.
- **Trainer** - It helps the trainer to measure the progress of trainees and make the required adjustments; establish a relationship between objectives and particular segments of training.
- **Trainee** - It helps to some extent in reducing Trainee's anxiety, by keeping the trainee aware of the expected task; increase concentration which is the crucial factor to make the training successful, creates an image of the training program in trainee's mind which actually helps in gaining attention, makes learning challenging and motivating; increase the probability that the participants will be successful in training.
- **Evaluator** - Training objectives facilitate measurement of progress of the trainees by defining the expected performance; it is an important tool to judge the performance of participants.

2.16 Role and Importance of Training and Development

The various definitions given to training and education suggest that several reasons exist why organisations and construction industry in particular must undertake continuous and consistent training programmes. The importance of training can be viewed as the benefits or contributions of training towards the achievement of corporate goals (Kelly, 1994).

Biech (2005) submits that organizations train in order to achieve a business need or requirement, improve or change workers' performance, enable employees gain knowledge or learn new skills and comply with change in the business environment. What organization expects to accomplish by investing in training efforts is to achieve a change in the performance of employees in order to reduce employees' turnover,

maintain current customers, create new customers, increase customer satisfaction, reduce errors, reduce expenses and save time.

Beach (1980) highlights the major roles of training as follows:

- Train new employees without specific skills, for example in form of apprenticeship (remedial training).
- Provide initial training for new employees, technical and other skilled and semi-skilled personnel (induction training).
- Fulfill specific manpower needs, such needs might lead an enterprise to establish its own training programme or sponsor training in other establishment.
- Develop or benefit workers
- Bring supervisors and managers up to date on the techniques of management.
- Solve operational problems.
- Re-train employed workers to perform new and changed jobs. Technological change or introduction of new products (in-service training) may necessitate this.
- Increase organizational flexibility and stability. Flexibility in this context relates, to ability to adjust to short-run variations in volume of work while stability relates to sustenance of corporate effectiveness despite loss of some key personnel.

Since the above mentioned roles are pertinent to the achievement of excellence and will contribute towards ameliorating the nagging problem of manpower shortage in the building industry, then efforts should be directed towards effective training to move the industry forward. The Business environment is constantly faced with various changes and challenges; just as the construction industry is faced with the challenges of modern technology and ageing workforce, there is need for impartation of skills which will produce learning; which when implemented will bring about excellence in the industry. Figure 2.4 is an illustration of this scenario.

Adequate Training and Development bring about optimum utilization of human resources; provide opportunity and broad structure for the development of human resources' technical and behavioural skills in an organization and help employees in

attaining personal growth; helps in increasing the job knowledge and skills of employees at each level, expands the horizons of human intellect and an overall personality of the employees. Training and Development helps in increasing the productivity of employees which in turn helps the industry further to achieve its long-term goal and leads to improved profitability and more positive attitudes towards profit orientation; helps in improving upon the quality of work and work-life.

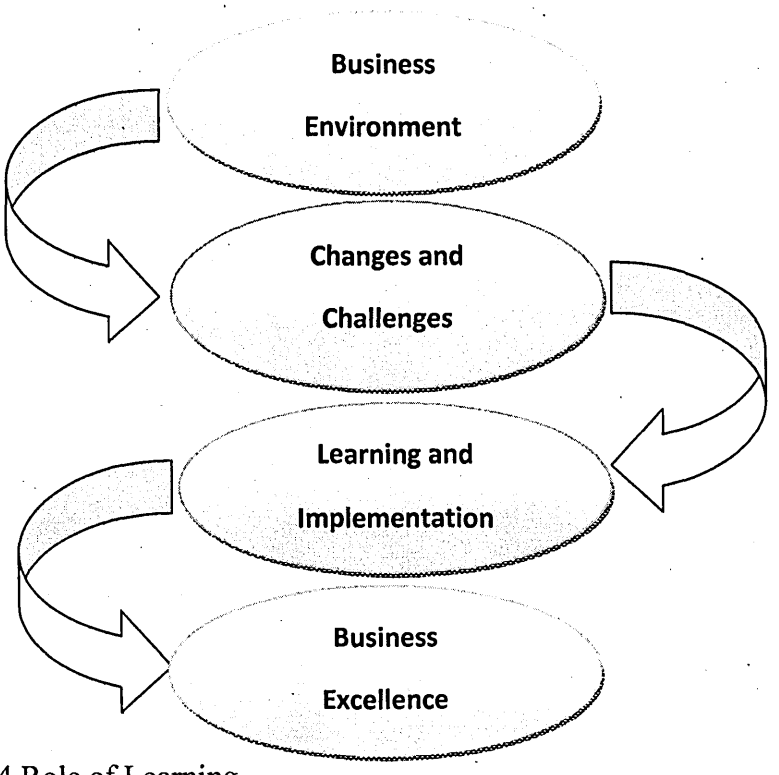

Figure 2.4 Role of Learning
Source: Naukrihub 2007

Training and Development improves the morale of the workforce and the health and safety of the organization thus preventing obsolescence (Davies and Davies, 1998; Furjanic and Trotman, 2000).

2.17 Principles of Training

Flippo (1984) observes that the effectiveness of training depends on the application of some basic and important principles. Such principles are based on extensive

research to identify the training needs and workable methodology for the particular situation. Beach (1980) has identified learning as the core of the training process. Learning refers to the human process whereby skills, knowledge, habits and attitudes are acquired in such a way that behaviour is modified. Major training principles according to Beach (1980); Biech (2003) and Sloman (2003) include:

2.17.1 Motivation

Nearly all the conscious behaviour of human being is motivated. The internal needs and drives lead to tensions, which in turn result into actions (Shah & Shah, 2007). Motivation is getting somebody to do something because he wants to do it. It is to inspire people to work, either individually or in groups in the ways such as to produce best results. Motivation is a set of reasons that determines one to engage in a particular behaviour. Motivation may be rooted in the basic need to minimize physical pain and maximize pleasure, it may include specific needs such as hobby, goal, state of being, ideal, or it may be attributed to less-apparent reasons such as altruism, or morality, or overcoming mortality. Another fundamental approach to motivation is to consider human behaviour as stimulated by the urge to satisfy needs. Maslow lists four basic needs which are Physiological needs, Safety needs, Belongingness and Self-Esteem; and three growth needs which include the Need to Know and Understand, Aesthetic Needs and the Self-Actualization Needs (Maslow, 1968; Shah and Kruglanski, 2003). Herzberg propounds a two-factor theory of intrinsic and extrinsic motivation; he distinguished between Motivators and Hygiene factors. Example of Motivators includes challenging work, recognition and responsibility which give positive satisfaction. Hygiene factors will include factors such as job security, status, salary or income and fringe benefits which do not motivate if present, but, result in de-motivation if absent (Herzberg, 1968; Analytictech, 2007). Accel-Team (2008) highlights the attributes of jobs which contribute to motivation of employees to include: the presence of goals and achievement of feedback; perceived contribution to a socially useful product or service; perceived skill utilization' an appropriate degree of attention with accompanying mental absorption; an optimum level of responsibility for decisions and degree of discretion present; employees' control over their own job; an appropriate degree of repetitiveness; opportunities for developing friendships; and

where dependent upon others for task achievement, some influence over the way the work is carried -out. The more highly motivated trainees are the quicker and more effectively learning is facilitated. Training must therefore be related to trainees' desires and needs such as job recognition, prestige and promotion. In effect, learning is most effective when the trainees realize that they can fulfil certain needs such through training (Pfeffer and Sutton, 1999).

2.17.2 Reinforcement

This underscores the use of rewards (positive reinforcement). Positive reinforcements include better working condition, promotion, pay increase, praise from and recognition by superiors (i.e. both tangible and intangible rewards). Reinforcement may be negative or positive. An example of negative reinforcement will be a demand for an employee to repeat a training programme due to poor performance at an initial training (CIPD, 2002; Reid and Barrington, 1999).

2.17.3 Practice (learner participation).

This refers to the learners or trainee's participation or learning by doing, which is synonymous with active participation in the learning process. The age-old adage "practice makes perfect" is relevant here. In essence, a carefully designed method that encourages the practice of what has been learnt is quite essential to effective learning (IPM, 1992; Bowman, 2005).

2.17.4 Feedback (knowledge of Results)

Feedback or knowledge or results implies that learners are allowed to know their performance. People learn faster when they are informed of their accomplishment (Biech, 2003).

2.17.5 Distribution of training periods

This border on optimal distribution of the time available for training. It relates to the spacing for training, the length or duration of training sessions, and the intervals

between sessions. Time distribution normally depends on several factors, which relate to the nature of the tasks and characteristics of the trainees. A reasonable distribution of available training period will enhance effectiveness of training (Furjanic and Trotman, 2000).

2.17.6 Transfer of Learning

Training should be related to job performance, knowledge, skills and attitudes acquired in training but not used on the job couldn't contribute to the achievement of organizational goals. Such a phenomenon will not encourage employees to pursue further training. Studies on learning principles have revealed that transfer of learning is more likely to occur between situations that have many things or elements in common. This underscores the need to ensure that, as much as possible training tasks are similar to job tasks (Piskurich, Beckschi and Hall, 2000).

2.17.7 Individual differences.

Individuals vary in intelligence and attitude. Consequently, any effective training programme should adjust training pace and complexity to meet individual abilities (Pfeffer and Sutton, 1999). Beach (1980) also identified some events that enable people to learn naturally in organizations. These include motivation, perception, acquisition, retention, recalling, generalization, performance and feedback. Beach opined that the learner must have the desire to learn a particular thing or the final product of the sort of learning. For instance, a professional management student may be highly motivated to learn about managing human resources or become an accountant. A professional builder may be motivated to be train as a quantity surveyor or a structural engineer.

2.17.8 Perception

The matter or subject to be learned has to be distinguished from others. This involves identifying a clear objective. At first, it may seem difficult, because the different categories in the area have not been previously learned but with time, more detailed ways of classifying the matter is learned. The professional builder will at

first wonder as to how to start and what is essential to learn. After about six months many structural engineering terms become familiar and identifiable topics that need learning become clear.

2.17.9 Acquisition

This relates with what has to be learned, which has to be related and relevant to the familiar so that it makes sense. Example of this according to (Biech, 2003) is recalling relevant examples from past-acquired personal experience.

2.17.10 Retention

The two-stage process of human learning includes primarily, short-term memory where items are stored before being transferred permanently to the long-term memory. The anecdotes and jokes that aid the understanding process at the time of learning do not need to go to the long-term memory.

2.17.11 Recall

This is the ability to summon things up from memory when required. There are different levels, this includes recognition- a point where we know we have seen the item before, and it takes less time to familiarize ourselves with it, but we could not have relied on memory alone. Recall is where we can generate the memory of our own accord.

2.17.12 Generalisation

This is the ability to apply the learning. In situations other than the specific one in which it was learned. For example, what has been learnt on motivation at work place could be applied to family situation as in training children.

2.17.13 Performance

This in line with Beach's definition can be defined, as the 'doing' or 'practicalising' what has been learnt. It is where what has been learned is done. It is the test of learning. The professional building student writes an examination and eventually tries to use or apply the knowledge gained from the course at the work place.

2.17.14 Feedback on performance

This represents the point where the learner finds out whether the performance has been satisfactory or not. Sometime, it will be evident or obvious because of the performance quality, especially in the case of physical skill learning. The assessment or feedback on the performance can help the trainer detect what more needs be done and further areas where improvements are needed.

2.18 Methods of training

Craig (1996) has identified four methods of training.

The four major types of training are:

- On the job training
- Classroom training
- Vestibule training
- Management development training.

Naukrihub (2007a) divides methods of training into two broad categories of Cognitive and behavioural methods. Cognitive methods which are more of giving theoretical training to the trainees include Lectures, Demonstrations, Discussion, and Computer Based Training (CBT) which include Intelligent Tutorial System (ITS), Programmed Instruction (PI), and Virtual Reality. Behavioural methods which are more of giving practical training to the trainees include different types of Games and Simulation such as Behaviour-Modelling, Business Games, Case Studies, Equipments Stimulators, In-Basket Techniques and Role Play.

2.18.1 On-the-job-Training

This method involves training of employees for job tasks by allowing them to perform such tasks under the guidance of an experienced worker. The experienced worker, through advice and suggestion, teaches the new worker or trainee the specific methods of handling the job (Stolovitch and Keeps, 2003). This method can be formal or informal in terms of imparting knowledge and skills. The method is the most common method of training used for both semi-skilled and unskilled positions. The technique involves, observation, demonstrations, oral and written explanations, pictures, charts and tape recording, under this method, employees traditionally learnt their jobs by exposure to experienced, workers who would show them what to do – it is often referred to as 'sitting by Nellie'. Undoubtedly, much learning do occur in this way, but as a learning system, it has been observed to be haphazard, lengthy and bad habits could be passed on as well as good ones. There are two types of on-the-job training these are: Apprenticeship and Internship.

2.18.2 Apprenticeship and Internship

2.18.2.1. Apprenticeship: Apprenticeship training, which dated back to craft guild system of the middle ages, is the most predominant type of on-the-job training. It is a type of on-the-job training which is used in jobs that require a relatively long periods of training and specific levels of skills such as bricklaying/blocklaying, carpentry, plumbing and welding to mention a few. The duration of apprenticeship depends on the type of skill involved, the educational background of the trainee among others; and would be from about two to six years. Under this training program, trainees or new employees are trained by allowing them to perform under the guidance of an experienced worker (Stolovitch and Keeps, 2004).

2.18.2.2 Internship: Also known as clerkship, pupilage or assistantship, depending on the professional training involved is designed to provide practical and realistic experience under supervision for professional or semi-professional employees, trainees or others who can benefit from some period of supervised practice.

2.18.3 Classroom Training: Classroom instruction is commonly used when concept theories, attitudes, and problem-solving abilities need to be learnt (Tabassi and Abu Bakar, 2008). Training activities such as some aspects of company orientation and safety training can be undertaken more effectively in the classroom than on the job. Also, different types of classroom training are commonly used for technical, professional and managerial personnel as well as high skill jobs where considerable amounts of theories, principles and concepts are examined. According to Awe (2004), classroom instruction techniques include case studies, lecturing, role-playing, programmed instructions and conferences. Such training could be received through courses offered by schools, colleges of technology; polytechnics and universities. In some instances, special programs run by these institutions can be designed to meet specific needs of companies – in the area of development and training of all levels of manpower including those of Artisans, and Craftsmen.

2.18.3.1 Case Study: This training method involves the analysis of written problem descriptions, generating alternative solutions, determining and choosing one with justification. In the process trainees learn how to evaluate information, make explicit assumptions and techniques for assessing alternatives. Case study method fosters learning by doing.

2.18.3.2 Lectures: One of the oldest methods of training, used to create understanding of a topic or to influence behaviour, attitudes lecture in printed or oral form. It is a formal organized talk by the teacher to a group of students or trainees in institutions. Under this method, trainees usually take notes for subsequent review to assist retention. Some of the main features of lecture method are - inability to identify and correct misunderstandings, less effective because lectures require long periods of trainee inactivity, can reach large number of people at once, it is a knowledge building exercise (Craig, 1996; Naukrihub, 2007a).

2.18.3.3 Role-Play: In role-play, two or more trainees are assigned certain roles to play (before the rest of the class) in problem situations. Observation of others performing the same role-play also provides information to learn from.

2.18.3.4 Programmed Instruction: This method is also known as "learning machine". It is a Computer-Based training that comprises of graphics, multimedia, text that is connected to one another and is stored in memory. It has some essential features, which include:

- trainees learn at their own pace,
- materials to be learnt is divided into units or stages,
- trainees are then asked questions about the materials,
- the trainee is immediately informed if a correct answer is given and allowed to proceed,
- if a wrong answer is given, the trainee is informed with reasons, and will be allowed to make another attempt,
- the trainee can only proceed when each unit has been mastered, the instructor only plays a minor role.

2.18.3.5 Conference: A conference or seminar is a discussion technique involving considerable participation from trainees. It, therefore, overcomes some of the limitations of the lecture method. The instructor directs the participants to acquire knowledge, participants also learn from one another as they share experiences.

2.18.3.6 Vestibule Training: Also known as laboratory training. It involves formalized systematic training provided for a few employees in an environment replicating the actual production environment, i.e. using necessary facilities, such as equipment and workshop materials normally used in the work place. As observed by Flippo (1984), vestibule training schools are the facsimiles of actual work areas. However, emphasis is usually on learning rather than production.

2.19 Management Development: This training method takes several forms ranging from personal counselling to subsidize or fully sponsored institutional courses. The focus according to Biech (2003) includes general supervision training, human relations training, in-problem solving and decision-making, and specialized programmes designed to groom management trainees for managerial positions. Naukrihub (2007) listed other types of management development programs to

include understudying, mentoring, coaching, job rotation and job instruction technique (JIT).

2.19.1 Understudying: involves an officer being trained, with a view to assuming, at a future time, the full responsibilities held by superior officer. The method supplies an organization with an officer with as much competence as his superior to fill the post of such superior which may become vacant due to promotion, transfer or retirement.

2.19.2 Job rotation covers temporary assignments in various departments, to familiarize junior executives with the contributions from each department. Benefits of job rotation are:

- determination of areas where improvement is required
- assessment and identification of employees that have potentials for filling positions
- identification of talents and knowledge, skills and attitudes (KSAs) required.
- provision of opportunities for employees to broaden the horizon of knowledge, skills and abilities by working I different departments and job scopes.

2.19.3 Job Instruction Technique (JIT) employs a strategy which focuses on factual and procedural knowledge; skills and attitude development. JIT is basically comprised of four stages of planning, presentation, trial, and follow-up.

- Planning stage - This stage involves a written breakdown of the work to be done so as to ensure that the trainer and the trainee understand that documentation is important for a good understanding of the scope of work. A detailed analysis and adequate documentation ensures that every aspect of the training program is covered. Another phase of this stage is finding out what the trainees already know and what should be the training focus.

Next, is to create a comfortable atmosphere for the trainees by giving comprehensive orientation and familiarizing trainees with the training program.

- Presentation stage - In this stage, the trainer gives the brief of the job while presenting the participants the different aspects of the work with trainee demonstrating how to do the job in the specified manner after the trainer's presentation. The trainee demonstrates the procedure while emphasizing the salient points and safety instructions.
- Trial stage - this stage is a kind of rehearsal phase during which the trainee tries to perform the task and the trainer is able to provide instant feedback. The focus of the stage improving the method of instruction because the trainer considers that any error occurring may not be the trainee's but a function of training. The trainer therefore helps the trainee by questioning and guiding to identify the correct procedure.
- Follow-up stage - this stage involves the checking of the trainee's job frequently by the trainer after the program in order to prevent development of bad work habits.

Figure 2.5 presents a pictorial model of the JIT.

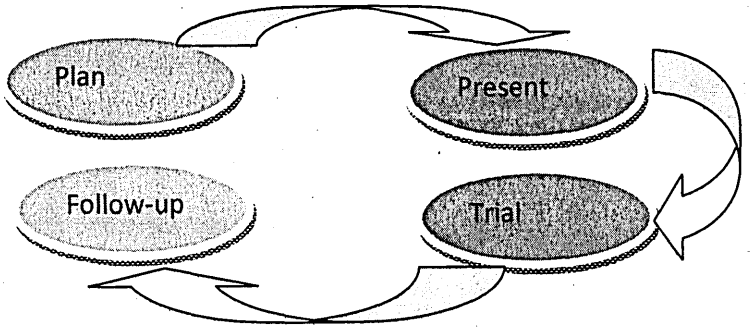

Figure 2.5: JIT Procedure
Source: Nuakrihub 2007

2.19.4 Mentoring - This is an ongoing relationship that is developed between a senior and junior employee. Mentoring provides guidance and clear understanding of how the

organization goes to achieve its vision and mission to the junior employee. Some of the features of the Mentoring are:

- it is done by someone within the company
- it is one-to-one interaction
- it helps in identifying weaknesses and focus on the area that needs to be improved. It is however more relevant to management level employees than to site operatives.

2.19.5 Coaching - This method is considered as a corrective method for inadequate performance. The procedure is mutually determined by the executive and coach and followed by successive counselling and meetings with the coach; it is a one-to-one interaction, it can be done on phone, meetings, through e-mails, chat; it can be done at the convenience of the CEO. For middle level management employees, coaching is more likely done by the supervisor or by experts from outside the organization. As it is with Mentoring; this method more relevant to management level employees than to site operatives.

2.19.6 Learning through Experience

Davies and Davies (1998) discussed the experiential learning which begins with concrete experience in which the learner has some experience to begin with and then, and then reflects on what that experience means. As the reflection deepens, the learner formulates abstract conceptualizations about what has happened through the experience. The abstract conceptualizations are tested through a process of active experimentation as they develop; this of necessity returns the learner once again to concrete experience. The facilitator of experience-based learning can be regarded as half mentor and half counsellor but much more performs he roles of an animator who helps the experience come alive for the learner. Other duties performed by the facilitator of experience-based learning include arranging for potentially educative experiences and orienting the learner to ways of learning from them. The method involve a process of going out and coming back - a cycle that moves through stages of concrete experience, reflective

observation, abstract conceptualization, active experimentation, and then back to concrete experience. This is illustrated in Figure 2.6.

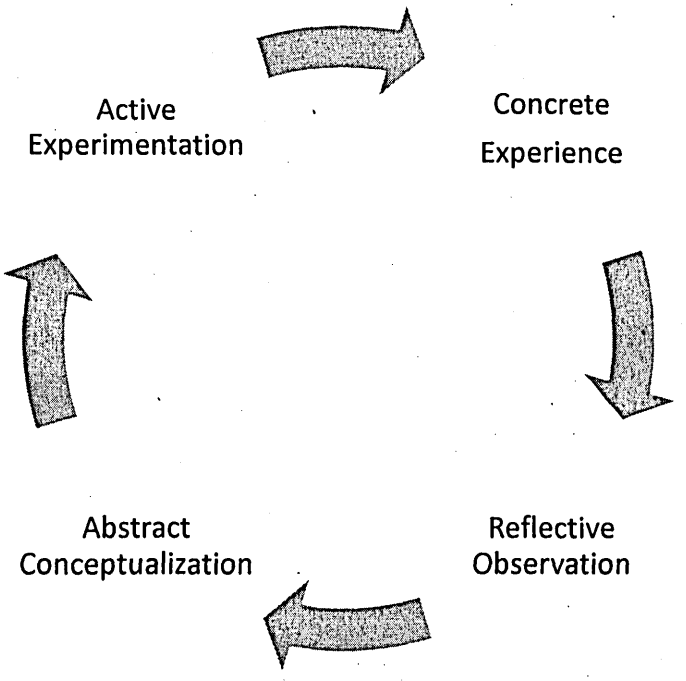

Figure 2.6: Experiential Learning Cycle
Source: Adapted from Davies and Davies 1998

Despite these varied approaches to training and development available for organizations and institutions for the training and development of skills, the only method prevalent in the training of craftsmen in Nigeria construction sector is the apprenticeship approach for the informal and the class-room approach for the formal training. There is need to give consideration to the combination of various approaches the in training and development of crafts skills for the purpose of enhancing training strategies in the sector.

2.20 Factors Influencing Training and Development methods

Some important factors determine the method of training adopted by various Institutions or Organisation in skill importation process.

These factors as listed by Kuye (1999) include:

- Time available for training

- Cost of training
- Number of persons to be trained
- Background of trainees
- Depth of knowledge required

Time available for training will determine the content and the depth to be covered, cost of training will influence the number of trainees to be accommodated for the program, number of persons to be trained will affect the budget and determine the furnishings and equipments needed to make the program effective; the background of the trainees will affect how much and how fast they can learn from the training, and depth of knowledge required may influence the modules design and instructional techniques.

2.21 Training Design

Figures 2.7 and 2.8 depict Training program design process. Reid and Barrington (1999) in analyzing the process as depicted in Figure 2.7 likens step 1 to constituting the 'syllabus' by reviewing the objectives and the knowledge, skill and attitudes required to achieve them. It is imperative to determine which objectives are the most important and what the focus should be. Stage 2 decides what sessions will be necessary and sets sub-objectives for each with the view to determining how best to evaluate the achievement of each objective; the determination of the appropriate training technique comes up at this stage. The available time and the most appropriate time of the day for each session are determined in step 3. In step 4 the training organiser constructs the timetable in such a flexible way as to accommodate necessary modifications in the course of the training programme. Step 5 takes care of giving adequate brief to the trainers as to the overall and specific goals of the training programme after which the trainers prepare the detailed materials for their sessions. In step 6 course manuals, log books and other references are prepared in such an impressive format because poor preparation can negatively affect the morale of the trainees.

Naukrihub (2007a) explains that effective design of the training program can be undertaken only when a clear training objective has been established and produced. The training objective clears what goal has to be achieved by the end of training

program - such as what the trainees are expected to be able to do at the end of their training.

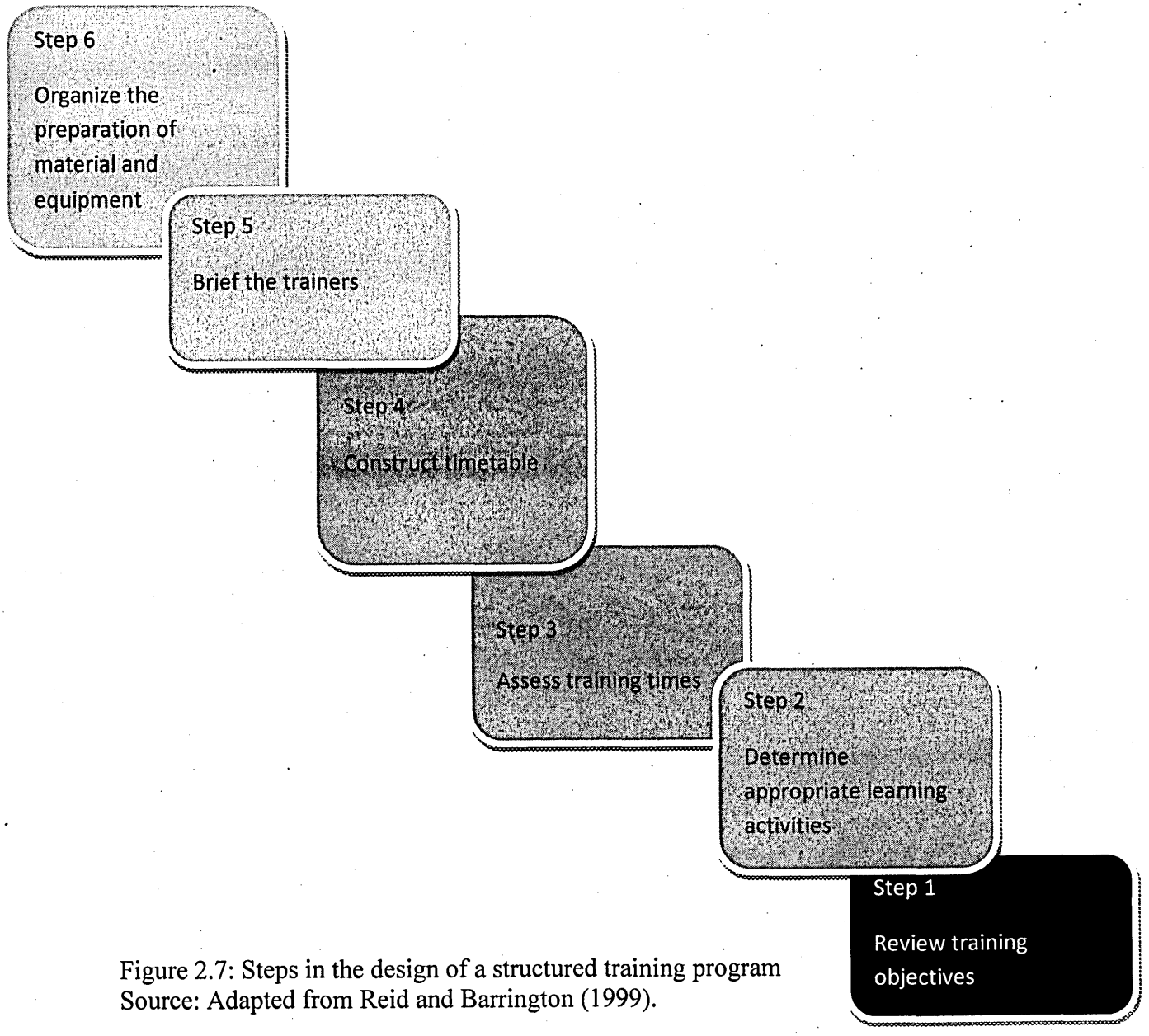

Figure 2.7: Steps in the design of a structured training program
Source: Adapted from Reid and Barrington (1999).

Factors for consideration in Training Design as illustrated in Figure 2.8 include:

- The Trainer
- The Trainees
- The training climate
- Trainee's learning style

- Training strategies
- Training topics
- Training tactics
- Support facilities
- Constraints

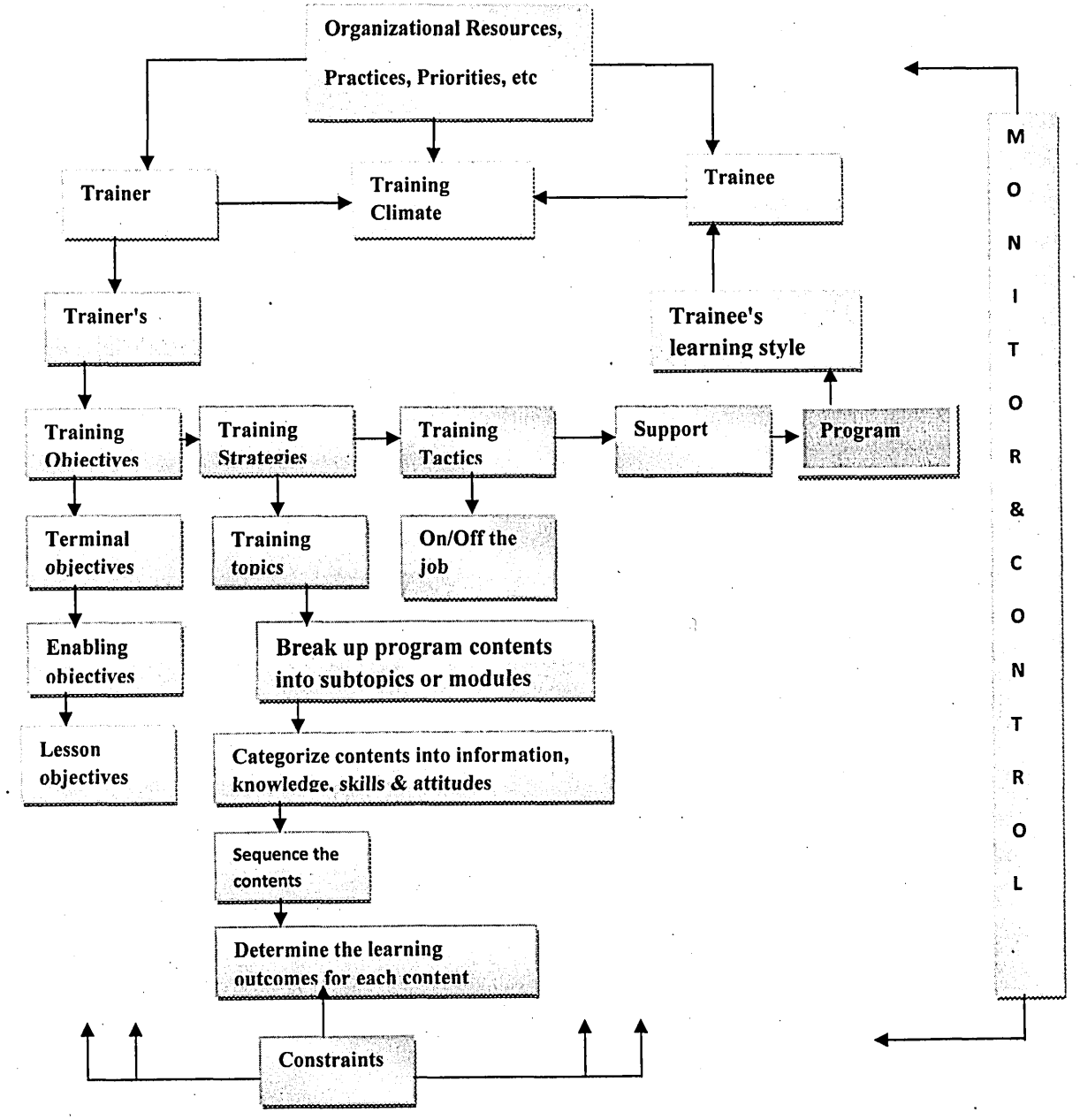

Figure 2.8: Training Program Design Process

Source: Naukrihub 2007

These factors need to be the subjects for monitoring and control when considerations are been given to designing the process of the training program. The factors are further clarified below.

2.21.1 Trainer

Proper analysis of the trainer's technical, interpersonal, judgmental skills is necessary before starting a training program in order to deliver quality content to trainers.

2.21.2 Trainees

A comprehensive training design requires close scrutiny of the trainees and their profiles. Age, previous experience, needs and expectations of trainees are some of the important factors that affect training design.

2.21.3 Training Climate

A conducive training climate comprises of ambience, tone, feelings, positive perception for training program among others. When the climate is favourable nothing goes wrong but when the climate in unfavourable, almost everything goes wrong.

2.21.4 Trainee's learning style Age, experience, educational background and other factors that can influence the Trainee's learning style must be put into consideration in order to get the right pitch to the design of the training program.

2.21.5 Training Strategies

After the training objective has been identified, the trainer translates it into specific training areas and modules. The trainer prepares the priority list of what must and could be included in the training program.

2.21.6 Training topics

Subsequent to the formulation of the training strategy, the trainer decides upon the content to be delivered; he breaks the content into headings, topics, and modules. These topics and modules are then classified into information, knowledge, skills, and attitudes. The sequence of training content is usually in the following manner: topics are

arranged in terms of their relative importance, from simple to complex, from known to unknown, from specific to general and based on dependent relationship.

2.21.7 Training tactics

As soon as the training program objective is made clear, trainer is in the vantage position to select most appropriate tactics or methods or techniques. The method selection depends on factors such as - trainees' background; time allocated, style preference of trainer, level of competence of trainer and availability of training facilities and resources.

2.21.8 Support Facilities

Various facilities to support the training program have to be given adequate consideration; these may be divided into printed and audio visual materials. Material and equipment needed will include markers, flip charts, white boards, projectors, computers etc.

2.21.9 Constraints

Relevant constraints that could affect the training program which might be in the trainers' mind such as: time, budget, design of the training, accommodation, facilities availability, equipment and furnishings should also be given consideration.

2.22 Procedure for Selection of training method

For training to be effective there is need for the persons in charge of training to follow necessary basic procedures. Bratton and Gold (2003) observes that following the establishment of the industrial training boards, by the Industrial Training Act 1964, a systematic training model approach was encouraged. This approach was based on a four-stage process shown in figure 2.9.

Bratton and Gold (2003) opines that the model approach fitly matches the conception of what must organizations consider as being rational and effective or efficient. The model laid appropriate emphasis on cost effectiveness throughout; in order to avoid wasteful expenditure, training needs are identified, objectives involving standards are set, programmes are designed and implemented, and the outcomes evaluated or to be more

precise, validated. This process is followed to ensure that the programme meets originally specified objectives and other criteria set by the particular organization. There is a preference for off-the-job learning by some organizations; partly because of the seeming weakness identified with the on-the -job training and in order to formalize training so that it is measurable, adequately standardised and undertaken by specialist trainers. The approach is also believed to enable trainer focus on the provision of separate training activities that avoid the complexity of day-to-day work activities and make evaluation much easier. In the systematic model, training needs assessment and analysis is concerned with identifying gaps between work performance and standard of work or performance criteria that have a training solution. Once the training need has been identified and gaps analyzed, clear and specific objectives, which can be used to design, learning events and evaluation of outcomes can be established.

Emerging from a consideration of needs will be plans for development activities. These may take the form of on-the-job courses run by specialists, which may or may not lead to qualifications, and, increasingly, open and distance learning activities. Whatever the form of development activities undertaken, the main issue is concerned with whether and how learning will actually occur and whether learning can be integrated into workplace behaviour and sustained (Caffarella, 1994). The systematic model of training places evaluation as the last stage of the four-stage model. Evaluation serves to provide feedback to trainers, so that small adjustments and improvements may be made to training activities, or to provide data to substantiate that training meets the set objective so that training expenditure can be justified.

In summary, the essential requirement for any training activity is that, it should be relevant and reflect the real world; and the key prerequisites for any effort to implement a training model includes a consideration of budgets, attitudes, abilities and culture or climate. Biech (2005) gives the training process as a 5-stages cycle in the 'ADDIE' acronym by separating the needs assessment stage from objectives development:

- Assess and analyze needs
- Develop learning objectives
- Design and develop the program
- Implement the design

- Evaluate performance

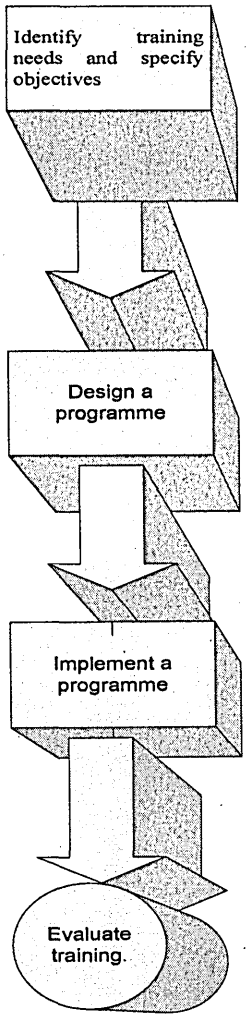

Figure 2.9: A Four- stage-training model.

Source: Bratton and Gold (2003)

2.23 Role of Organization in Training and Development

An organization has a very close relationship with the trainee and the trainer because it is the first contact for both. Reid *et al.,* (2004) opine that the demand for training in an organization or industry increases when there is need to:

- develop or hire new people - when new recruits are to be trained.
- expansion - when the industry wants to increase its headcount
- increase certain number of staff within a time-frame
- enhance the performance of existing employees
- Demand for training also increases when there is change in the nature of job, change in taste of consumer, and change in methods of product development.

The model below explains the stages or steps the organization goes through for the transfer of training to the field. The sequential steps include: Identification of the training needs of the organization or industry with the view to designing the program and determining the right categories of employees to be selected for the training; actual selection of the participants for the training, defining the expectations from the program and communicating same to the selected participants, monitoring the trainees' progress on the training, and facilitating the transfer of training to the field (Piskurich, Beckschi, and Hall, 2000; Naukrihub, 2007). This is illustrated in Figure 2.10.

2.23.1 Role of Trainer in effective transfer of training

Effectiveness in transfer of training depends a lot on the trainer because it is the trainer only who can remove the mental block of trainee, motivate the trainee to learn, delete the negative perception of the trainee regarding the training; much more, a lot depends on the personality of the trainer also.

Areas of general competencies that are relevant in the practice of the trainer include:

- Content development skill - training material production, graphics, layouts
- Time management and budgeting skill
- Presentation skill

- Self development - interpersonal skills, good listening skills, flexibility, and acceptance of the share of accountability.

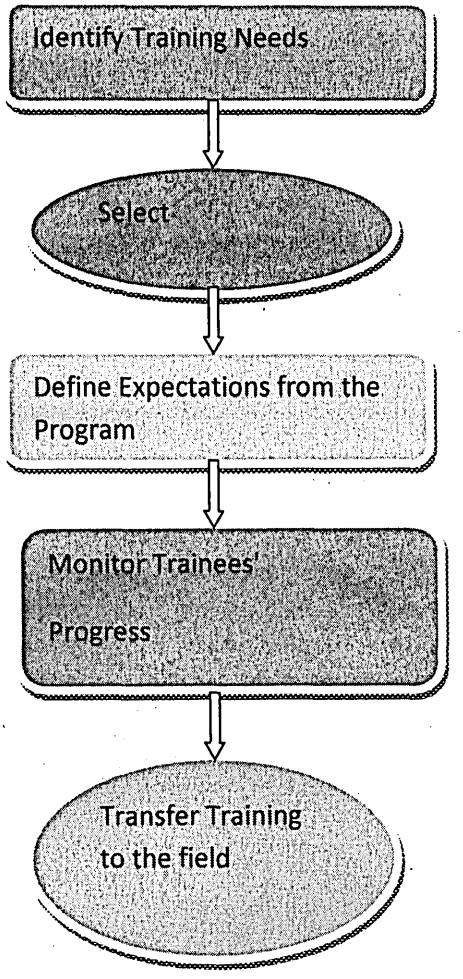

Figure 2.10: Steps for transfer of training to the field

Source: Naukrihub 2007

The specific skills that need to be present in a vocational trainer are:

- Training design
- Evaluation of the training program
- Training need analysis
- Worksheet design
- Exercises design (Biech, 2005; Naukrihub 2007; Davies and Davies, 1998).

The roles of the trainer in transfer of learning are illustrated in Figure 2.11 below.

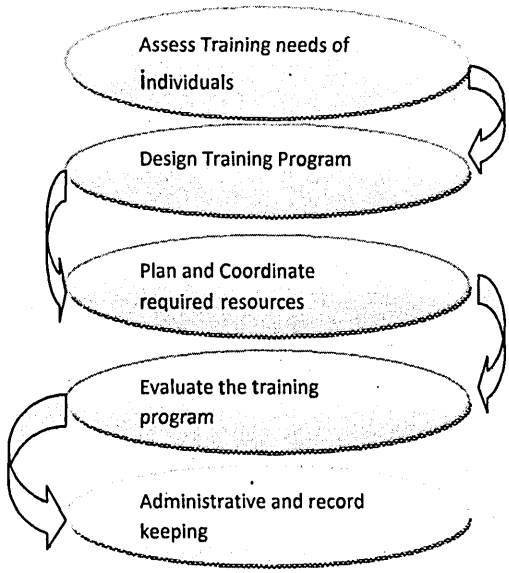

Figure 2.11: Role of Trainer in effective transfer of training

Source: Naukrihub 2007.

All the variables discussed above and highlighted in Figure 2.10 are salient in the development of functional skills training and development program or framework in any organization or industry.

2.23.2 Role of Trainee in transfer of training

The trainee is a major stakeholder in any training program. The whole training program is developed for the trainees only, each candidate plays an important role in the transfer of training because the attitude of one participant regarding the training can influence other participants; each participant can also assist in advancing the learning process to realize the training objectives. Participant's willingness to invest in the program is directly proportional to the outcome of the learning that the trainee could expect. Each participant forms his or her own perception towards the training; some perceptions remain the same during the program, while some faded depending upon the assessment of a program by the participant. Naukrihub (2007a) lists some personal factors that affect the trainee's learning to include:

- Previous training experiences
- Benefits expected from training

- Level of self esteem
- Personal Problems
- Comfort level with the trainer or facilitator
- Learning style of trainee
- Family Situation
- KSA of trainee
- Desire for professional development and growth
- Relation between the training program and personal objective

Some environmental factors that affect the trainee's learning include:

- Training design i.e. methods, techniques, and strategies
- Content of training
- Training objective
- Infrastructure - tea/coffee breaks, eating facilities
- Relationship with colleagues and subordinates
- Composition of training group
- Trainer and Training teams

Davies and Davies (1998) summarize the human characteristics that are most likely to influence learning as:

- Learning styles
- Intelligence, aptitude, and achievement
- Gender, ethnicity, and social class
- Motivation and emotional intelligence
- Life stage and developmental tasks
- Cognitive development

Naukrihub (2007a) concludes that no matter how good the training program is, in the end it is the participant only who decides whether to change his behaviour or not. Trainees do not change their behaviour merely because someone tells then to do so;

they change when they feel there is a need to; they demonstrate it with their own learning style. The trainer and the organization can only try to remove the mental blocks of the trainee; the bulk depends on the trainee itself.

2.23.3 Focus on Trainee

Training is not only facilitated or successful with good training design and well articulated objectives but also with the readiness and willingness of the trainees. For training to produce the expected result; three major attributes are required from the trainees. These are:

- Motivation (M)
- Knowledge, Skills, and Attitudes (KSAs)
- Expectation towards the Training (E)

Trainees should desire to improve on the factors that affect individual's performance (Liu, Ruan and Xu, 2005). Expected performance is directly proportional to the multiplication of motivation, required (KSAs), and expectations towards the training (Naukrihub, 2007a).

This scenario is illustrated in Figure 2.12 below.

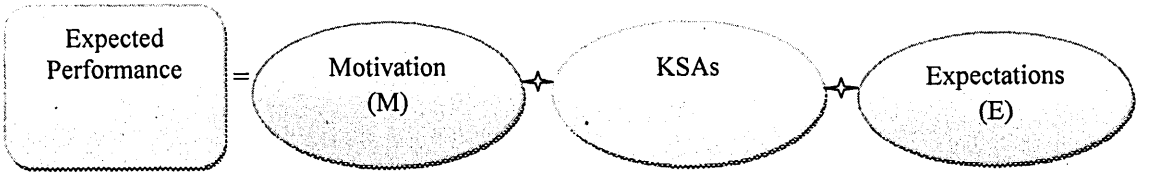

Figure 2.12: Focus on Trainee
Source: Naukrihub 2007

2.24 Organisation and Management of Training and Skills Acquisition

Training for skills acquisition are management responsibilities placed under the human resources or training and development unit. The unit performs a staff or service function,

which include – planning and facilitating a systematic and organised development opportunities for the personnel playing a motivating and policy–determining role for the organization in the area of training and development. The training and development unit performs a number of functions covering the planning and implementation of training programmes (Reid *et al.,* 2004). These, among others include:

- Definition of training needs.
- Development of overall plans, objectives and assignment of responsibilities.
- Collection and preparation of training, curricular and materials.
- Administration and coordination of all training programmes.
- Selection of qualified instructors and training of operating personnel (where necessary) for certain courses.
- Training of new starters, apprentices, employees for transfer and promotion, instructors, supervisor.
- Evaluation and coordination of all training programmes.
- Evaluation and continuous study of training needs and programmes.

The existence of the Training and Development unit however, does not relieve other managers or departments of training and development responsibilities. The training and development tasks are shared between line groups and service or staff units.

2.24.1 Training need and their Sources.

The determination of training needs is the most important role of the Training and development unit. Information about training needs and pressure to provide training programmes emerge from various sources: viz, individual employees, other managers within the enterprise, outside vendors (i.e. training agencies), as well as studies and observations made by personnel officers. Individual employees are often sensitive to their own strengths and weaknesses and can, therefore, request for specific training programmes.

Abdulgafaru, (2003) opines that training need is a shortfall in employee performance, or potential performance, which can be remedied by appropriate training. Sources of training needs within an organization are grouped as follows:

- shortfalls in the employee's performance,
- requirements of the new comers,

- organizational charge requests and
- expressed needs of individuals.

As argued by Reid *et al.,* (2004), detailed analysis of the various ways by which training need is established is presented below:

- Identification of organizational and production problems.
  - Poor material control/high material wastage turnover.
  - Low or reduced productivity.
  - Increase In number of customer complaints/excessive grievances.
  - Poor quality, excessive scrap and waste/increase in number of rejected items.
  - Delayed production/failure to meet job schedules/targets.
  - Increase in accident rate/excessive violation of rules of conduct.
  - Increased rate of machine breakdown.
  - High employee/labour turnover.
  - Excessive labour-management strive/disagreement.
  - Excessive absenteeism.

- Analyzing job and Employees
  - Job analysis
  - Employee appraisal
  - Testing

- Anticipation of Impending and future problems/needs
  - Expansion products, new services.
  - New designs
  - New technology
  - Organizational charges
  - Human resource inventory – comparing present human resources with estimated needs.

- Requesting for employees/managerial inputs.

- Interviews and questionnaires to obtain views regarding perceived problem areas and differences that would constitute or indicate desirable training programme.

2.25 Trainees' Selection

Craig (1996) identified several approaches are generally used to select employees for training and development. They include those that are 'employee-oriented'; those based on 'planned-career-development', and those that could be termed problem-oriented-strategies. Irrespective of the approach used. Trainings selection policies should ensure fairness to all employees and should help boost employee's morale. Such policies should ensure that those whose needs are greatest and whose capacities to absorb and utilize the training are selected. Training opportunities should not be given as a reward for good behaviour or on the basis of favouritism or as a long service award. Where an organisation operates an effective system or employee performance appraisal, selection decisions on training can be based on the outcome of such appraisals. The criteria used for selecting training program participants should be carefully designed and publicised widely within the organisation.

2.26 Implementation of Training

Implementation of Training program is concerned with putting the training program into effect according to definite plan or procedure. Training implementation is the most difficult phase of the training project because one error in execution can result in complete failure. A comprehensive training design does not mean that the task is completely accomplished because implementation phase calls for continual adjusting, refining and redesigning (Naukrihub, 2007). Adequate preparation is the most important step towards making a success of the training process; however it is important to consider issues such as trainer's preparation and rapport with participants; the physical set up; and necessary review of the agenda during implementation. There is need for the trainer to be mentally and physically prepared prior to the delivery of the content of the training; he must be comfortable and adequately familiar with the content of the course so as to set the ground before

meeting with the trainees, he must also be flexible in his approach. Strategy for establishing a good rapport with training participants include encouraging informal conversation, listening carefully to trainees' comments and opinions, using familiar examples, and varying instructional techniques. Good physical set-up is also a pre-requisite for effective and successful training program because it makes the first impression on the participants. The trainer would need to review the objectives and goals of the program, highlighting what trainees are expected to have achieved at the end of the training; briefing such as the schedule, training activities, flow of the program and other relevant information should be made known to the trainees.

2.27 Evaluation of Training

Evaluation consists of getting feedback about a training programme and comparing that with the objectives or targets an organisation sets out to achieve. It involves the determining, the extent to which the objectives of the training programmes have been achieved. There are several criteria for evaluating training programmes. They include – the criteria of cost, quality of instruction, effectiveness; ability to meet company needs, and effect on employee's attitude and altitude. Quite often most companies in evaluating training programmes use a combination of criteria (Bramley, 1996; Biech, 2003).

2.27.1 Methods of Evaluating Training

The approaches to the evaluation of workers training and development can be broadly categorised under the following headings.

- Process or activity assessment
- Outcome evaluation
- Cost benefit analysis

2.27.1.1 Process or activity assessment

A training and development programme can be evaluated in terms of delivery, that is, how instruction was given. This is known as process or activity assessment. Process measures or records what went into the training activity. It describes or determines

whether what was expected actually happened. Process information can be obtained by interviewing the participants or trainees in form of opinion survey or through examination of materials, observation of training in progress.

2.27.1.2 Outcome Evaluation

Evaluation can take the form of examining the consequences attributes to training and development. This is termed outcome or results assessment. Outcome is the 'bottom-line', which any investment in training can be rationalized. There are different types of outcomes for instance;

- improvement in knowledge and skills after training could be measured by examining samples of work (to determine quality);
- measuring productivity or performance change, tests taken during courses or special tests administered thereafter;
- if there is comparable information about the trainees capacity prior to training, reasonable comparison can be made to determine how much was learnt afterward.

Assessment can even be more certain if there is information about a control group of similar employees, who are yet to go through such training. Effects on work outputs and work-related behaviours are more practical and more effective measures. These include changes in the quality and amount or quantity of work, absenteeism and turnovers, relations with co-workers, motivation and efforts demonstrated at work.

2.27.1.3 Cost-benefit Analysis

With the evident and complementary strengths and weakness of process and outcome evaluation, for the two evaluation methods to be effective, both techniques should be used in combination. Data on outcome demonstrate the extent to which training has real value. Such data can be related to training cost figures to determine whether the training has been worthwhile. No evaluation of training and development is complete, therefore, without a cost-benefit analysis. Techniques for evaluating training interventions include phased tests, as in craft training; final test of examination, workplace-based tests of competence, such as those required for NVQs;

projects, structured exercises and case studies (Reid and Barrigton, 1999). Specific methods for evaluation include observation, questionnaire, interview, and self diaries.

2.28 Purposes of Training Evaluation

Naukrihub (2007) lists the main purposes for training evaluation as: research, feedback, control, power game and intervention.

2.28.1 Research - It facilitates determination of relationship between training and acquired/transfer of knowledge at the work place.

2.28.2 Feedback - It assists in giving a feedback to the trainees by specifying the objectives and relating it to learning outcomes.

2.28.3 Control - It ensures that training is adequately tracked and control to ascertain effectiveness.

2.28.4 Power game - It provides data for top management to manipulate situation for administrative purposes.

2.28.5 Intervention - This forms a basis for comparing the actual and the expected outcome of the training program. Figure 2.13 illustrates the purposes.

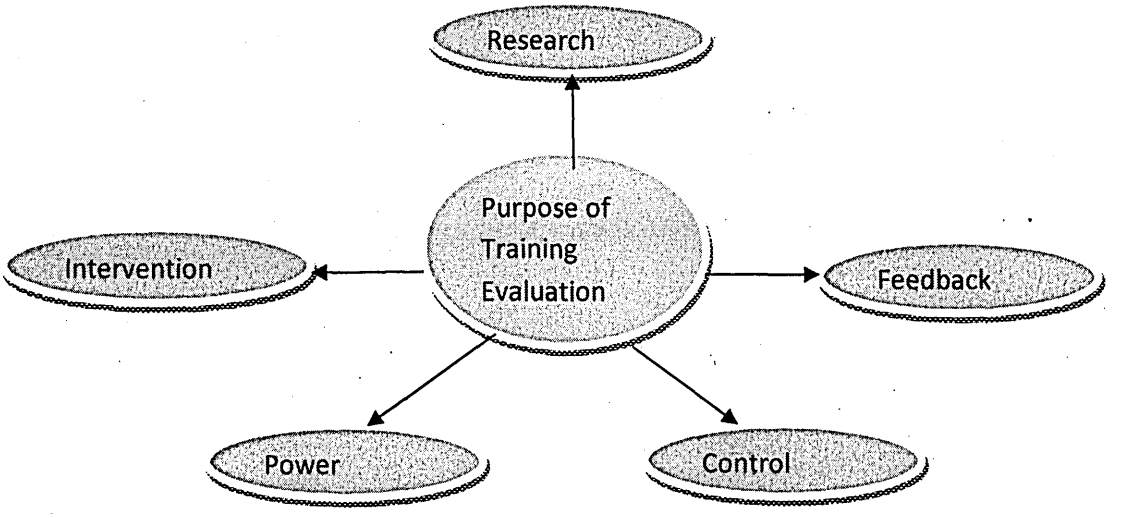

Figure 2.13: Purposes of Training Evaluation (Source: Naukrihub 2007).

2.29 Factors Affecting Effective Training

One other major factor that can negatively impact on training during implementation is the Trainer's Communication skills and Techniques. Communication is a two-way process in which people transmit (send) and receive ideas, information, opinions or emotions. These must be interpreted and reacted on; normally through feedback before the communication process is completed. Communication between trainers and trainees should follow a pattern that is meaningful, direct, open and honest. A Trainer conveys information and instructions through communication, either written or verbal; it is therefore a vital link between the Trainer and the Trainee. An effective communication is the key to good knowledge impartation. Accel-Team (2008) records that an independent survey confirms human retention level based on the various means of communication as:

- Reading 10% retention
- Hearing 20% retention
- Seeing 30% retention and
- Hearing and seeing 50% retention

The survey provides a very useful clue to effective communication and reveals that audio-visual techniques are much better or more effective method of teaching and training than just audio or visual. It also shows that written/reading messages is least effective way to communicate.

There are broadly four components of any communication, these are:

- the communicator
- the medium
- the message and
- the recipient

But Accel-Team (2008) observes that the focus in most training scenario is the message. The other three components are usually ignored and this leads to a complete breakdown in communication. Other additional factors that affect communication include language barriers and cultural differences.

2.30 Section Summary

The review of literature in this section focuses on various aspects of workers' training techniques that could be adopted by any industry or organization. It could be inferred from the section that the construction industry in particular has a wide spectrum of training strategies that could be explored for imparting skills to new hands; and for the development of skilled operatives and management staff currently engaged in the industry. The implication of the emerging revelations from the reviewed literature in this section, is that if the industry would be proactive in determining its training needs, design appropriate training programs, implement, evaluate and follow-up on same; the challenge of shortage of competent and confident skilled operatives will be adequately tackled. Considering the current trend within the Nigerian construction industry, the major technique by which artisans/Craftsmen are trained are the classroom, apprenticeship and internship methods. The implementation is even in such an un-organised and un-coordinated manner. Only few among the multi-national construction firms embark on continuous training and development of their employees. Few professional bodies such as the Nigerian Institute of Building in collaboration with some non-governmental organizations recently started to organise the practising tradesmen with the intention of embarking on skills developmental training programs; but such effort needs to be within an appropriate framework. The issues considered in this section are therefore imperative for consideration in the development of a functional training and development framework for the Nigerian construction sector.

In summary the chapter took a holistic view into various topics relevant to construction sector crafts skills career training and development under four broad sections. Section one reviewed the construction industry skills areas and discussed the job definition and training approach for selected core crafts skills careers in the sector. Section two elaborated on the shortages of skilled operatives in the construction industry and its implications for the Nigerian nation. Construction crafts skills shortages found not to be peculiar to Nigeria. Section three reviewed the education and training system highlighting on the philosophy and structure of VET in the nation, while section four elucidated on the characteristics of craftsmen training, education and development highlighting on the role and importance of training and development with emphasis on the various strategies available for effective craft skills/career training and development. The literature reviewed in the chapter provided a good basis for the design and conduct of the various surveys in the course of the study and enhanced the accomplishment of the research aim and objectives.

3.0 Skills Training Approaches in selected Countries

3.1 Aim of the Section

This chapter aims at exploring literature on the strategies or structures of VTE in selected countries around the globe with the view to accomplishing one of the research objectives of ascertaining the efforts and Innovations of other countries on vocational Training to produce Craftsmen.

The literature search in the chapter also focuses on providing answer to the research question of what effective strategies are other countries adopting to address skills training to curb labour shortages, and how can such strategies relevant to the Nigerian situation be adapted in the formulation of framework for training and development of crafts-skills in the Nigerian Construction industry? The chapter explores the history of crafts training and development and state's intervention in vocational education and training in the selected countries.

For the purpose of this aspect of literature search, the information available from the UNESCO website on the World Data on Education for the various countries was reviewed, with particular focus on the models or structures of TVE in the various countries. Other major sources of data include the World Bank, International Labour Organisation (ILO), African Union (AU) and the Organization for Economic Cooperation and Development (OECD) websites.

3.2 Introduction

This section of the Literature review attempts to trace the recorded history and have an overview of Craftsmanship training and skills development. History is the study of the past, with special attention to the written record of the activities of human beings over time. The purpose of the section is to review the path trodden in the past to attract trainees, develop skills and produce sufficient competent workforce to meet economic needs. According to Carr (1977), history begins with the handing down of tradition; with the view to carrying the habits and lessons of the past into the future for the benefit of future generations. Encyclopaedia Britannica (2009) records that from the earliest times, in Egypt and Babylon, training in craft skills was organized to maintain an adequate number of craftsmen. As far back as the 1800 B.C. it was required that artisans teach their crafts to the next generation; in

the later years of the Roman Empire, craftsmen began to organize into independent collegia intended to uphold the standards of their trades. A similar practice later emerged in Western Europe in the form of craft guilds where guild members were supervising product quality, methods of production and work conditions for the various occupational groups.

The main aim of the section therefore, is to explore the technical, vocational education and training (TVET) approaches in selected countries with the view to examining age old and prevalent good and relevant practices which could be adapted or adopted to tackle the present problems facing various aspects of training and education of Tradesmen in Nigeria, thus aiding the formulation of a vocational skills training and development framework that could enhance the production of able, competent and confident workforce for the Nigerian construction industry.

3.3 Criteria for selection of countries for review

The selection of countries for review in this section is mainly discretional. The major considerations for selection of countries whose TVET history are reviewed depends on satisfying any two criteria which include; availability of literature, uniqueness of the TVET approach, relevance and similarities of the TVET structure to the Nigerian pattern, the perceived effectiveness of the approach as revealed by the impact on the industrial and economic development in the selected nations. Other factors include:

- Available literature on the reforms and progress the country is making in training and developing vocational skills.
- Effectiveness of country's vocational training methods in producing skilled crafts-people to meet the nation's local crafts' manpower demand and for export.
- Overall economic and technological growth and development of the nation.

3.4 Basis for Countries' selection

Countries whose TVE literatures were reviewed were selected from the UNESCO regional classifications to cut across the various continents around the globe. The purpose for selection is to identify good practices with the view to critique the Nigerian model for necessary

improvement. The regional groupings from which countries were selected; according to UNESCO (2011) are as follows:

- Africa
- Arab States
- Asia and the Pacific
- Europe and North America
- Latin America and the Caribbean

The selected countries were purposively chosen from each of the region based on the above stated criteria, the number of countries selected for review was based on the size of the region with a minimum of two and a maximum of six from each region.

3.5 List of selected countries for review

The list of selected countries from each of the Region is presented in Table 3.1

Table 3.1: List of selected countries for TVE model review

UNESCO REGIONS				
Africa	**Arab States**	**Asia and the Pacific**	**Europe and North America**	**The Caribbean and Latin America**
1. South Africa 2. Ghana 3. Benin	1. Egypt 2. Saudi Arabia 3. Kuwait	1. India 2. China 3. Taiwan 4. Korea 5. Japan 6. Australia	1. Germany 2. United Kingdom 3. France 4. United States	1. Jamaica 2. Brazil

3.6 Africa

3.6.1 South Africa

The management of TVET in post-apartheid South African is principally divided between the Departments of Education and Labour. The Department of Education is responsible for

developing and maintaining the education and training system, and for setting the quality standards. The provincial Departments of Education take charge of the actual delivery. The regulation of Skills Development is under the purview of the Department of Labour. The National Skills Authority is under the Department of Labour and oversees the Sector Education and Training Authorities SETAs (UNESCO, 2002). The Construction Education and Training Authority (CETA) is one of the Sector Education and Training Authority. CETA was established in April 2000 after the promulgation of the Skills Development Act, No 97. 1998. Its primary objective is to influence the course of training and skills development by ensuring that all training reflects the current needs and requirements of the construction sector. The Authority initiates competency-based skills training schemes aimed at improving and developing South Africa's human resource capacity and producing construction related workforce whose skills are recognised and valued in terms of the National Qualifications Framework (NQF). In accordance with the CETA's quality driven philosophy, standards are rigorously adhered to. CETA is accredited as an Education and Training Quality Assurance (ETQA) by the South African Qualifications Authority (SAQA). This ETQA status authorises CETA to accredit and monitor the delivery of training by Accredited Training Providers (CETA, 2012).

South Africa's TVET system runs a National Qualifications Framework (NQF) which was established to provide mechanism for awarding qualifications based on achievement of specified learning outcomes. The NQF implementation includes the recognition of prior learning which is recognized by the South African Qualifications Authority (SAQA). SETAs specify the learning outcomes. The South African NQF enhances effectiveness in the coordination of the TVET system, improves the coherence of the qualification structure and promotes the relevance of training to the industry (UNESCO, 2007). The SAQA Act made provision for NQF which consists of eight levels grouped into three broad groups, namely: general education and training (NQF Level 1, including adult basic education and training Levels 1-4); further education and training (Levels 2-4); and higher education (Levels 5-8). With effect from 2009, however, higher education qualifications occupy six levels, levels 5 to 10; with Levels 5-7 being equivalent to undergraduate and levels 8-10 postgraduate (UNESCO, 2010).

The South African primary and secondary education system is structured in four levels which include: Foundation phase (primary grades 1 to 3); Intermediate phase (primary grades 4 to 6);

Senior phase (grades 7-9 comprising of 1 year primary plus 2 years secondary education); Senior secondary (grades 10-12). The National Technical Certificate NTC 1 to NTC 3 are attained at this level, while NTC 4 to NTC 6 are attainable at Post-secondary/higher education and training level (UNESCO, 2002). The South African approach is somehow relevant to that of Nigeria in that technical certificate courses are offered at the senior secondary level. However the South African system has sectors' skills training regulating authorities which as of present is not available in Nigeria.

3.6.2 Ghana

UNESCO (2002) notes that TVET is not a recent concern in Ghana, there was the recognition of the need to establish educational facilities for the training of artisans and technicians during the pre-independence era in the early 1950s. The document entitled 'Fundamental principles of education policy' which was released at the time, recommended the provision of Trade Schools for the provision of technical and literary education that will fit young men to become skilled craftsmen and useful citizens. The outcome of the new philosophy on education was evident from the number of technical related institutions that had been established by 1951.

Technical and vocational education received further prominent attention in Ghana's education policies since its independence in 1957 and subsequent enactment of the Education Act in 1961 (Akyeampong, 2010). The government established technical schools and polytechnics for the enhancement of technical and vocational education in the nation. Continuation schools which emphasizes pre-vocational education for those who were not selected for secondary education were established in 1967, and the National Vocational Training Institute vested with the responsibilities for the coordination of Technical, Vocational Education and Training (TVET) and apprenticeship training in the nation was established in 1970 (Preddey, 2005). Various reforms to address the challenges of skills shortages in the nation were embarked upon over the years (Aryeetey, Doh and Andoh, 2011). Akyeampong (2010) indicates that in 1987, the primary and junior secondary education were combined and re-branded 'basic education' in 1987 with a greater focus on TVET. In 1990, the National Council for Technical and Vocational Education and Training was established with the sole purpose of coordinating training delivery of the private and public providers. The 2004

education reform focused on the development of TVET as a viable alternative to general education and on the training and development of TVET teachers. The reform also gave birth to the National Apprenticeship Training Board whose responsibility is to supervise the hitherto unregulated traditional apprenticeship training schemes; the reform was accompanied with a TVET policy framework aimed at improving the links between formal and informal training systems, and encourages trade associations to support members to deliver skills training (Government of Ghana, 2004; Palmer, 2005). In 2006, the Council for Technical and Vocational Education and Training (COTVET) was established to formulate skills development policies and enhance TVET system to improve the competitiveness and productivity of skilled workforce and increase people's income generating capacities through the delivery of industry-centred, competency-based and quality vocational training programmes (OECD, 2008; MOE, 2009). The delivery of TVET in Ghana involves private and public schools, vocational training institutes and informal apprenticeships. Junior secondary school leavers can choose to proceed to senior secondary school, secondary technical schools or technical institutes (UNESCO, 2010a; MOE, 2009). The National Vocational Training Institute (NVTI) provides for the proficiency testing of illiterate trainees, including traditional apprentices, who submit their skills to practical, non-written evaluation. The Opportunities and Industrialisation Centres (OICs) provide post-training support and follow-up services to their trainees. The NVTI's initiative has allowed for illiterate trainees to enter the formal job market on the basis of their skills proficiency certificates while the transition from school to the world of work is facilitated by the OICs' post training support system (AU, 2007).

Ghana's TVET system is structured like that of Nigeria, however, the crafts skilled workers trained within the country's TVET system are more competent than those trained in Nigeria. This is evident in the fact that construction companies in Nigeria prefer hiring the services of craftsmen trained in Ghana than those trained in Nigeria.

Although TVET plays a prominent role in Ghana's economic and social development, the image problem prevalent with vocational skills acquisition in other place limits the numbers of youth going into vocational training because TVE is poorly perceived as the reserve option for those unable to achieve the grades to enter into higher education (Aryeetey, Doh and Andoh, 2011).

3.6.3 Benin

Benin's education and training system comprises pre-school education, primary education, general secondary education, technical and vocational education and training, higher education and adult literacy and education. Technical and Vocational Skills Training (TVET) are delivered in both the formal and informal sectors. Formal training is provided by both public and private sector organisations. Training in the informal sector is primarily based on the traditional apprenticeship mode (OECD, 2008). The Bureau d'Appui aux Artisans (BAA) works through the various trade associations to complete the training of traditional apprentices. The body links the master crafts persons and apprentices who are members of the trade associations to reputable private and public training providers for complementary training. The BAA's role is limited to that of financier and technical adviser while the trade associations implement and supervise the training through activities such as collaborating in the development of new training modules, participating in the selection of trainees, negotiating instructors' fees, monitoring the attendance of the apprentices, co-organising the trade testing at the end of the training and participating in the evaluation of the training. Master craftsmen also benefit from the training in the form of skills upgrading with such training taking place in the workshop of one of the participating master craftsmen (AU, 2007). However similar to what is the case with the TVET approach in Nigeria, OECD (2008a) argued that the current system in Benin does not meet the needs of the national economy because it puts too much emphasis on delivering diplomas that allow people to further their studies, with not enough practical training to give trainees the needed skills to enter the world of work. This phenomenon is attributed to the fact that the training establishments are poorly equipped and lack adequately qualified instructors.

3.7 Arab States

3.7.1 Egypt

The delivery of Technical and vocational education and training (TVET) in Egypt takes both formal and informal modes, involving both private and public institutions. The public TVET sector is administered by a number of government agencies (British Council, 2011a). Abrahart (2003) reports that basic TVET in the nation is provided through secondary education in technical and commercial schools, post-secondary education in training

institutions. Other forms of training include training through industry attachments such as dual systems and apprenticeships, in-service training, and the re-training of people already in the labour force; both employed and unemployed. UNESCO (2006) observes that education policy in Egypt relies on constitutional principles which specify its general framework and determine its basic features. Since 1981, compulsory education covered eight years and included two cycles: primary education, lasting five years, and the three-year preparatory cycle. In accordance with a reform in 1999, compulsory basic education now lasts nine years (age 6-15) and covers the six-year primary education cycle and the three-year preparatory cycle (NCERD, 1999). Public education is provided free at all stages. The Ministry of Education (MOE) is responsible for all matters related to educational policy, planning, budgeting, implementation and follow-up, expect for higher education. The ministry is also responsible for determining curricula, textbooks and education aids and identifying the necessary qualifications of teaching staff.

The technical education sector of Egypt's education system is comprised of Technical and Commercial Secondary Schools that offer a Technical Diploma for courses of three year duration, and for courses of two-year duration awards (First Technician) Technical Diploma. The vocational education route is comprised of Preparatory Schools offering a Preparatory Vocational Certificate, and Secondary Vocational Schools offering Secondary vocational certificates. The preparatory schools are usually designed for students in their early teens, while the Secondary Vocational Schools and Technical Secondary Schools are designed for students who are aged 15 to 18 years. (Abrahart, 2003; British Council, 2011). UNESCO (2006) reveals that TVET in Egypt is offered at two levels, the three-year technical secondary schools train middle-level technicians while five-year technical secondary schools train high-level technicians. Trainees who pass the exams at the end of the three or five-year technical schools are awarded diploma. Funding for education in Egypt is mainly provided by the government.

Egypt's system of education is similar to that of Nigeria with both nations having 9- year compulsory basic education. Secondary education is structured into general and technical in both systems. The Nigerian 3-year junior secondary school education offers introductory technology along with other general subjects whereas in Egypt it is fully a vocational preparatory and a pre-requisite for vocational secondary education.

3.7.2 Saudi Arabia

UNESCO (2010b) informs that the administration and management of education in Saudi Arabia is under the responsibility of the Ministry of Education, the Ministry of Higher Education, and the Technical and Vocational Training Corporation (TVTC).

The Ministry of Education takes charge of; general education which comprise of elementary, intermediate and secondary education; special education; and adult literacy education. The Ministry of higher Education supervises higher education programmes which include teacher training colleges and girls' colleges; while the Higher Education council is the supreme authority vested with the responsibilities of supervising and coordinating post-secondary education.

Saudi's educational system is also structured into general and technical and vocational education streams. The Elementary school is 6-years, followed by the Intermediate schools of 3-years duration. The Secondary education is designed to be for 3-year duration. Technical and vocational education is provided at technical secondary institutes. Training programmes in the fields of industry, commerce and agriculture normally last three years (UNESCO, 2010b). British Council (2011a) indicates that Vocational preparation and Vocational training certificates are awarded by vocational institutes and vary in duration and study mode. The vocational institutes determine the periods of the training programmes in compliance with the required training skills and determine the qualification and training levels in accordance with Saudi Arabian vocational standards set by TVTC. Vocational Institute Diplomas are awarded by the VTIs after two training sessions, subjects of study includes basic maths, physics and English the graduates are classified as technicians. Technical College Diplomas are awarded by Technical Colleges after two year's study, in addition to a co-operative training semester. Graduates are classified as Advanced Technicians/Assistant Engineers; trainees for the colleges are sourced from among the secondary school graduates. The technical colleges use the 'semester' method, with the training year divided into two semesters of 15 weeks' duration. Saudi Arabian's Education and training system clearly indicates that the nation gives prominence to TVET.

3.7.3 Kuwait

Scholefield (1983) observes that the first major step towards the existing system of post-secondary technical institutes and training centres came with the establishment of the Technical College as a post-primary school for the training of skilled workers in 1954-55. In

1963-64 it was raised to post-intermediate status and in 1967 the courses were elevated to include technician level. He further noted that the provision of technical and vocational education and training in Kuwait is a reflection of the general educational system which extends over 12 years and is divided into three stages which comprise of primary, intermediate and secondary - each of 4 years duration. UNESCO, (2010c) however noted that since 2004/05, the duration of primary education is five years (grades 1 to 5) which is compulsory, and entry age is 6 years. Secondary education has a preparatory or intermediate level (lower secondary) which lasts four years and is also compulsory. Students who successfully complete the level are awarded the intermediate school certificate which grants them access to secondary education.

TVET is supervised by the Public Authority for Applied Education and Training (PAAET) established in 1982 (British Council, 2011b). The Authority offers one- to two-year assistant technician programmes for intermediate school graduates. The education system was previously 4-4-4 but after the changes introduced in the structure of education system in 2004/05, general secondary education now lasts three years; such that the system is now 5-4-3. (5 years primary, 4 years intermediate and 3 years' secondary). Successful students in the final general secondary education examinations are awarded the general secondary school certificate. TVET in the nation comes under higher education which includes university and post-secondary education and training. The training centres are more vocational in orientation and offer two-year technician programmes for secondary certificate holders (UNESCO, 2010c).

From the above literature, Kuwaitis' system of education seems unique because secondary education is a pre-requisite for enlisting in vocational training, the implication is that majority of the secondary school leavers may be opting for university education if there is no incentives to get them to do otherwise.

3.8 Asia and the Pacific

Tilak (2002) observes that the Countries in the Asian region placed varying emphases on general and vocational education depending on several historical, social, economic and political considerations. While general education is somehow similar in nature, the pattern for the provision of vocational and technical education and training (VET) vary from one country to the other. With rapid transformation of societies in the spheres of social, political,

economic, technology and education; there has been changes in the perspectives on the need for Vocational, technical education and training in the various countries in the region. This section attempts to trace the history in the development of VET in selected prominent countries within the Asian region.

3.8. 1 India

Indian Ministry of Labour's Directorate of employment and Training initiated Craftsmen Training Scheme (CTS) in 1950 with the establishment of Industrial Training Institutes (ITIs) for skills training in the various vocational trades. The Apprenticeship Act was enacted in 1961. It regulates the programme of training of apprentices in the industry so as to conform to the syllabi, period of training and other relevant issues as laid down by the Central Apprenticeship Council (CAC); and to utilise fully the facilities available in industry for imparting practical training with a view to meeting the requirements of skilled manpower for industry. The 1961 Act was effectively implemented in 1962, the act initially envisaged training of trade apprentices. The Act was amended in 1973 to include training of graduate and diploma engineers as 'Graduate' and 'Technician' Apprentices. The Act was further amended in 1986 to bring within its purview the training secondary schools streams as 'Technician (Vocational)' Apprentices (Wikipedia, 2009b). Both government and the private sectors established Industrial Training Institutes and Centres. Vocational training, as a matter of policy, is the joint responsibility of both Central and State Governments. The tasks of developing training schemes, policy formulation, setting of standards, conducts of examinations and certification is vested in the Central government; while the implementation of the training schemes rests with the State government. The National and State Councils for Vocational Training (NCVT/SCVT), which comprise of representatives from employers, workers and government advise both the Central and State governments respectively on matters relating to craftsmen's training (DGE&T, 2005).

3.8.2 China

China's economic structures was for many centuries characterized by the unity of agriculture and subsidiary craft production; the peasant population was essentially self sufficient. Agriculture provided food whilst subsidiary production supplied clothing tools and other utensils. There were craftsmen who had abandoned farming and were developing a period of

urbanization with the creation of trading centres as early as 770 to 476 BC. As in medieval Europe, the further development of the crafts pursued by the families or clans let to the creation of guilds that provided protection for craftsmen against the arbitrary action of the state officials. The guilds formulated ordinances that dealt with undesirable competition, product qualities and prices, number of apprentices and duration of apprenticeships. There was no strict division between crafts and guilds; and apprenticeship training was intended as a means of controlling access to the guilds. When the People's Republic of China (PRC) was established in 1949 as a Socialist State, skilled workers accounted for only a small percentage of the labour force. The initial development phase of 1949 to 1957 demonstrated a fight against illiteracy and made the training of technical cadres a prime objective; part-time schools (half-work/half study schools) were set up to ensure the training of cream of craftsmen to promote the nation's industrialisation. The pattern of education in China streams graduates of General Lower and Upper Middle Schools into Technical Colleges/Universities, Secondary Technical School, Skilled Worker Training School, Vocational Middle School and Apprenticeship; with each designed to fulfil a specific technical training role (Munch and Risler, 1987; Boyd and Lee, 1995).

3.8.3 Taiwan

Taiwan is a small island located in the Asian Region. Despite the fact that the island is poor in natural resources and must import the raw materials for almost all it produces; the nation has overcome all barriers and has achieved a high living standard. One of the most important factors contributing to the economic success in Taiwan is its well-trained and highly motivated work force. The explosive economic growth and rising prosperity is linked to the country's system of vocational education. Since 1950 the number of schools and colleges has exploded and the vocational education system has also increased dramatically. The determination of the government in the 1950s to transform the agricultural economy to an export-oriented industrial economy caused a greater demand for craftsmen and productive workers (Steve, 1993). The government formulated a consolidated policy of development and improvement in vocational and technical education to meet the skilled manpower need. In 1989, the Taiwan government passed a law stipulating 12 years of compulsory education in order to meet the growing demands for skilled workers in industries and maintain social stability by minimizing unemployment and elevate the social status of the citizenry. Over the

years, both the government and the private sector have been making concerted efforts to develop education; and this has resulted in constant increases in educational budgets. The share of the nation's revenue allocated to education currently far exceeds that of many other richer nations. Taiwan's emphasis on mass vocational education extends to post-secondary level education; this is evidenced by the creation of closer linkages between high schools and postsecondary institutions. Vocational and Technical education are viewed as important and as having a major influence in providing the skilled labour force that can transform the nation into one of the world's most powerful economies (Welch, 1983; Lucas, 1981; Chen & Shih, 1989). A Manpower Planning Committee (MPC) was established as far back as 1967 under the Council for Economic Planning and Development to promote vocational training. The first national vocational training was founded with United Nations (UN) sponsorship in 1968, the first institute of technology was established in 1974. In 1981, the Employment and Vocational Training Administration (EVTA) was established under the Ministry of Interior to coordinate, promote, and supervise vocational training and development and trade skill tests. The principle upon which Taiwan's vocational education development has been based for over past four decades has been that of equal emphasis on both quantity and quality. Under the unflinching support and encouragement of the government, both the public training and the industry-based training have been well-developed; all the vocational training centres are well stocked with modern, state of the art facilities and equipments with updated curriculum. Tuition, books, and practice materials are free and many youngsters aspire to enter the training programs; skilled workers are provided for the industries and youth unemployment problems are effectively tackled (Kung, 1986; Land, 1990).

3.8.4 Korea

Vocational education and training contributed immensely to the economic development of Korean through the supply of skilled human resources. Korea concentrated on labour-intensive industrial processes that merely depended upon manual skills in the 1960s. At the period, the government decided that the curriculum for vocational high schools should be run separately from academic high schools; thus systematizing the vocational education curriculum. As far back as the 1960's vocational high schools, junior technical colleges and technical universities were founded. The 1970's and 1980's witnessed the introduction and implementation of the '2 + 1 system': which was operated among technical high schools in order to increase individuals' adaptability to the workplace industrial experience by offering

students 2 years of an academic curriculum at school and 1 year of training at an actual work site. During the same period, technical colleges experienced tremendous growth as vocational education began to operate systematically. In the 1990s, the government's national commission for educational reform announced the 'New Vocational Education System Building Plan' which brought a breakthrough in the history of education; by building a readily accessible vocational system for a demand-based lifelong education society, thus bringing about a pragmatic change in vocational education. The 'reform plan for the vocation education system: vision 2020 - education for all' was also announced by the Ministry of education and human resources development (MOE & HRD) in the 1990s. The reform proposed Vocational Education for all to be a joint responsibility of the industry and other central and local government department, to expand beyond the school age for the lifelong learning of adults and workers; and to maximize the interchange of human and material resources and their practical usage (Mee, 2002; Paik, 2005; Lee, 2006).

3.8.5 Japan

The history of Craftsmen's training in Japan is unique in the sense that apprenticeship and employee training have often featured a personal orientation that is rarely found in other nations. Tilak (2002) indicates that vocational and technical training received serious attention in Japan even during the 19th century. Vocational training in Japan, as in many other countries, is the responsibility of the Ministry of Labour (MOL), which works closely with other government departments and private organisations to ensure that a high standard of public and authorised vocational training is provided. Vocational training in Japan is regulated by the vocational training law of 1969. In addition to training provided by the government, training centres are established by larger private enterprises to meet their own needs. In order to ensure that training is conducted rationally and effectively, the Ministry of Labour stipulates certain standards which they must comply with; when the standards are adhered to, the training is classified as authorised vocational training. It is conducted by individual employers, employer organisations, federation of employer organisations and labour unions (Emerald Backfiles, 2007). Japanese apprenticeship and employee training have often featured a personal orientation rarely found in other industrial nations. The unique concept of the nation's apprenticeship stems from a difference in the relationship between employer and employee. Large Japanese companies have a mandatory social obligation to provide lifelong work for employees who, in return, are required to continue with the same

employer until death or retirement - no matter what is the job assignment. Because Japanese apprenticeship emphasizes employment with a particular company, the close relationship between an apprentice and a specific trade, common elsewhere, is lacking in Japan (Encyclopedia Britannica, 2009).

3.8.6 Australia

The Australian Government Department of Education, Employment and Workplace Relations, DEEWR (2005) informs that Vocational education and training (VET) in Australia had its roots in the mid to late nineteenth century with the establishment of mechanics' institutes, schools of mines and technical and working people's colleges to develop the skills of Australia's working population. For about 100 years the focus of vocational training was the men population. In the 1960s and 1970s Industry and society started to change, as traditional mining, agricultural and manufacturing industries started to decline in economic significance, new industries like communications and finance were emerging and more women found entrance into the world of vocational education and the workforce. In 1974, with the Kangan Report on needs in Technical and Further Education; the roles and mission of the TAFE system was defined and training began to change with emphasis on preparatory and pre-vocational training thus marking a slow but steady growth in technical training and craftsmanship. In the 1980s, a number of reports pointed to the need for the training system to be driven by the needs of the individual and industry so that the economy as whole; and not just the service industry could prosper. In the 1990s other reports emerged, which looked at expanding training systems, increasing young people's participation in training and a consolidated national training system; this led to the development of a consensus that substantial reform and a unified national effort was imperative for the nation. In 1992; all states, territories and the Australian Government agreed to the establishment of the Australian National Training Authority (ANTA) a co-operative federal system of vocational education and training with strategic input by industry. In 1994, the Fitzgerald Report into the implementation of the national system led to the concept of best practice. States and territories were made to take responsibility for accreditation and standards endorsement of vocational training, and a stronger and more coherent industry training advisory structure was established. In 2000 and beyond, the national VET system continues to respond to industry, individual and community needs, focusing on capturing the best advice possible from industry; meeting client needs; and higher quality standards. The above revelation concerning the

Australian approach indicates that VET system is dynamic; the government also take a lead role in promoting post-school education and training system that is nationally consistent and coherent; responsive to individual, industry and community needs; and recognised as providing quality outcomes. To achieve this, the Australian Government works with state and territory governments, education and training providers, and the industry.

3.9 Europe and North America

3.9.1 Germany

The nature of apprenticeship changed greatly after World War 11 with considerable variation between different countries. West Germany had the advantage of a practically new beginning and made a distinction between skilled trades needing apprentices, semiskilled trades needing trainees, and handicrafts that employed artisans. Trades were grouped under local chambers of industry, handicrafts under chambers of handicrafts. Part-time attendance at a vocational school which was included in the employment hours of trainees was made compulsory until age 18. Deissinger and Hellwig (2005) indicated that Germany's Craft Regulation Act passed in 1897 made provisions for craft chambers as institutions of public law, to determine the minimum standards for vocational training as well as to function as examining bodies for journeymen and master craftsmen; since then the notion of skilled craftsmanship became rooted within the system. Germany has been viewed as a country where "industries embark on practical based trainings and thus are distinguished by a very high proportion of the workforce having intermediate level qualifications" (Miller, 2002; Steedman, 1998). Vocational training commonly occurs in the Dual System which functions as the major non-academic route for German school leavers, thus exposing them to the labour market as skilled workers, craftsmen or clerks (Bynner and Roberts, 1991; Greinert, 1994). In the German system of vocational training, apprenticeship method is culturally entrenched because it is the age-old method of craft training which dated back to the Middle Ages (Deissinger, 1994). The 'dual' system of training which is presently in use emerged during the first two decades of the twentieth century when the vocational part-time schools replaced the continuation schools to supplement apprenticeships and to inculcate vocational training in the education of the youth (Deissinger and Hellwig, 2005). The German approach is an apprenticeship system which is institution-based that supplements secular learning with vocational training. It is based on the principle of dualism of learning sites whereby apprenticeship has on-the-job and

off-the-job components which take place in the training company and the vocational school respectively. This promotes a training culture that views vocational training not just as a means of acquiring skills for employment purposes but as a means of education; compulsory attendance in part-time vocational school, where both occupation-based and general subjects are offered; is enforced for all apprentices. There has been a dynamic approach to vocational training since the enactment of the 1897 Craft Regulation Act. In 1908, the right to train apprentices was restricted to craft masters and a master craftsman qualification became a requirement for establishing a business. In the 1920s the chambers of industry and commerce established final examinations for industrial workers which became mandatory after 1937. The "dual" character approach to training was made mandatory in 1938 the 1953 Craft Regulation Act reinforced the industrial-based training and the 1969 Vocational Training Act which is a central legislative tool for in-company training; highlighted necessary quality controls and further established training as a joint responsibility of the state and the industrial sector (Raggatt, 1988; Deissinger and Hellwig, 2005).

3.9.2 United Kingdom

According to UNESCO (2007), the education and training systems of England, Wales and Northern Ireland are broadly similar. The education system in Scotland is however distinct with its own laws and practices. In the UK, education is the number one priority of the government; and the overall policy and funding for education is determined by the following major government departments:

England

- Department for Children, Schools and Families
- Department for Innovation, Universities and Skills (which replaced the Department for Education and Skills in June 2007)

Wales

- Department for Children, Education, Lifelong Learning and Skills

Scotland

- Scottish Executive Education Department

Ireland

- Department of Education
- Department for Employment and Learning

Lewis (1985) reviews that the approaches to education and training in England and Wales, Scotland and Northern Ireland has developed separately; although there are pertinent common trends. For centuries, England and Wales have provided school and university education. In medieval times, grammar schools were only established to train candidates for the priesthood; later, independent schools and voluntary schools which provided a broader curriculum were established by religious bodies. The Education Act of 1870 introduced publicly-maintained elementary education throughout England and Wales. Local School Boards were set up to take charge of elementary education in their areas. School attendance from age 5 up to age 10 was made compulsory in 1880 and in 1889 local authorities were empowered to spend part of their revenues on technical instruction. Board of Education was set up in 1889 to coordinate the education system nationally, and by the same year the school-leaving age was raised to 12. The Education Act of 1902 transferred the responsibility for providing education to the locally elected councils of counties; the same Act empowered the local education authorities to provide secondary education. In 1918, the school-leaving age was raised to 14, to 15 in 1947 and to 16 in 1972. The 1944 Education Act established a three-stage system of primary, secondary and further education, with the primary education reorganised into infant and junior, and secondary education into modern, grammar and technical schools. (Black, 1984; Lewis, 1985; Prak, 2006 and CIPD, 2007) indicate that formal vocational training in the United Kingdom can be traced to the Middle Ages and earlier. The 1563 Statute of Artificers formalised the system of trade guild apprenticeships, and the Statute remained in force until 1814 by which time contemporary practice had pass through considerable changes. Towards the end of the eighteenth century, Mechanics' Institutes were established, first in Scotland and later throughout the United Kingdom. By the 1850s, about 700 institutes were in operation, many of which were affiliated to the Royal Society of Arts; established in 1754 as the Society for the Encouragement of Arts, Manufactures and Commerce in Great Britain. In 1878, the City and Guilds of London Institute for the Advancement of Technical Education (CGLI) was founded by five City of London Livery Companies (trade guilds). The Institute became the main technical examining body. The Technical Instruction Act of 1889 empowered the local authorities to raise local finance to establish technical schools. The first Government training

Centres were established in 1925 to provide training and re-settlement programmes for ex-servicemen, the disabled and the unemployed. In the 1970s, the centres (now known as Skill Centres) increased in number across the nation to cater for the needs of those who wished to change jobs or to upgrade their existing skills. According to (CIPD, 2007; Britannica Encyclopedia, 2009; Sleight, 1993), the Industrial Revolution influenced attitudes toward training. The Mechanized approach created a need for both skilled and unskilled workers. In England apprenticeship was maintained by craft industries and extended to similar fields. Due to industrialization and modernization, there was need for division of labour; and development of large-scale machine production increased the demand for workers with specialized skills. The early part of 20th century witnessed an expansion in assembly-line methods of production which in turns, escalated the number of unskilled and semiskilled jobs; which made the long period of apprenticeship for skilled occupations unattractive. Consequently, many countries started devising labour programs that made skilled jobs more accessible to the general population. The Employment and Training Act of 1948 in Britain; brought about the emergence of a Central Youth Employment Executive (CYEE) which led to proposals for the set-up of a National Joint Apprenticeship and Training Council (NATC) in each industry with each industry designing suitable criteria for the training of apprentices. Included in the 1944 Education Act was the statutory responsibility for the provision of further education by the local authorities. During the 1960s, the number of training places, both full-time and part-time, increased for school-leavers considerably. The 1960s also witnessed the first major Government intervention in training; with the enactment of the Industrial Training Act of 1964 which provided for the establishment of statutory industry training boards (ITBs) for industries which as at the time together employ approximately fifty percent of the UK work force. The Northern Ireland ITBs, which were also set up after 1964; operate independently from those in the rest of the UK under the Department of Manpower Services. The 1964 Act aimed at ensuring an adequate supply of trained men and women at all levels or industry; improve the quality and efficiency of training; and spread the cost of training among all employers. Brockmann *Et al* (2010) has observed that the main role of the state in VET is the development of education policy, government input is therefore of paramount importance for the successful implementation of VET agenda.

3.9.3 France

Troger (2002) submits that the history leading to the contemporary organisation of vocational training for young people in France started with the abolition of the guilds in 1791. Prior to the time the guilds were passing on skills through apprenticeship; the disappearance of the traditional setting for organising apprenticeship training, however, triggered off a drought of skilled workmen. The problem lingered through the 19th century and continued up to the First World War, leading to a decline of traditional apprenticeship training in craft trades and a decline in the trades themselves. The development also led to the deterioration in the working conditions of young people and children who were exploited in the industries using manual labour; there were also shortages of skilled labour in the industries. These two concerns were the preoccupation of the political and economic elites throughout the 19th century, and response was the development of primary education to teach and protect children and the formation of technical schools and evening classes to counter the challenges of skilled labour shortage. Many evening courses were provided privately and by philanthropic associations, also workplace schools and schools financed by trade organisations offered technical training at varied levels. One common feature of the initiatives at the time was the low level of involvement of the State and the vital role played by private and municipal bodies. The coming to power of the Republican in 1879 brought about development of technical training focused on the youth as a way of maintaining order among the young people while meeting the needs of industry and trade. The initial attempt was the development of technical schools funded jointly by the State and local authorities to train highly skilled workers who eventually rose rapidly to become foremen or skilled technicians. A diploma attesting occupational skills was created in 1919, theoretical training courses were made compulsory for apprentices and in 1925 an apprenticeship tax was levied on enterprises that did not train apprentices. Technical training centres were taken over by the government in 1944, followed by series of reforms between 1959 and 1975 until vocational training came under the supervision of the Directorate of Technical and Vocational Education (DTVE) of the Ministry of Education. This led to the creation of 24 national professional consultative commissions (NPCCs) that represented employers, government and trade unions. Those willing to embark on apprenticeship could still do by arranging contract with private employer and by attending the complementary course; a school beyond the normal age of 16 or by serving apprenticeship in an artisan trade. Final examination for those graduating from the colleges and school were arranged and supervised by the Directorate of Technical and

Vocational Education (DTVE), while those of graduating apprentices were supervised by the local chambers of crafts (Fox, R. and Weisz, G. 1980; Britannica Encyclopedia, 2009; Troger, 2002).

3.9.4 United States

Access Washington (2007) reports that the premier legislation in the United States to promote an organized system of apprenticeship was enacted in 1911. The law placed apprenticeship under the jurisdiction of an industrial commission. The development resulted in the enactment of state legislation requiring all apprentices to attend classroom instruction for a minimum of five hours a week. A concerted effort championed by the representative groups of the construction industry; to bring about a national, uniform apprenticeship system was embarked upon by national employer and labour organizations, educators and government officials in the 1920s. The boom days following World War 1 reinforced the need for comprehensive training of apprentices; consequently, the Federal government participated in the national promotion of apprenticeship in 1934 by establishing the Federal Committee on Apprenticeship charged with the responsibility of recommending a policy on apprenticeship training in the United States. The Congress passed the National Apprenticeship Law in 1937; this Law had since set the pattern for the system of Federal Government assistance in apprenticeship programs. The Federal Committee, later known as the Bureau of Apprenticeship and Training has since been reorganized and enlarged to include equal representation of employers and labour, plus a representative of the U.S. office of education. The Bureau work closely with employer and labour groups, vocational schools, state apprenticeship agencies and others concerned with apprenticeship schemes to promote effective training of craftsmen for various industries in the U.S. (Williamson, 2007; Britannica Online Encyclopedia, 2009). In the U.S. the Bureau of Apprenticeship and Training of the Labour Department continued to oversee the training of craftsmen. Training period was fixed to vary from two to five years, with much of the training taking place at technical and vocational schools; while the lowest age for entry into the workforce was 16, many trades require a high-school diploma; which eventually makes the entry age 18. In order to attract more able young men and women to apprenticeship in the years when they are making career decisions, apprenticeship preparatory courses are given in high schools, vocational, and technical schools. The courses acquaint the youth with the immense

opportunities in crafts and trades and afford them some theoretical and technical instruction in specific field of interest (Access Washington 2007; Britannica Encyclopedia 2009).

3.10 The Caribbean and Latin America

3.10.1 Jamaica

General education in Jamaica is administered and delivered by the Ministry of Education through its administrative head office and six regional offices. Schools are run by government and by private entities which receive government funds to pay teachers. The government is committed to human resource development as a tool for personal, social and economic development (HEART, 2008).

TVET in Jamaica is under the supervision the Human Employment and Resource Training (HEART) and the National Council on Technical and Vocational Training (NCTVET). The HEART Trust was established to develop, co-ordinate, monitor, encourage and provide financing for the training, employment and placement of various levels of skilled personnel. In order to carry out this mandate, the National Training Agency (NTA) was established to improve the co-ordination of vocational and technical training. The HEART Trust is financed by a levy from employers with payroll above a specified level. The NCTVET has the overall responsibility to develop occupational standards, accredit and approve training programmes and institutions which meet established standards, and to assess individual competencies leading to the awarding of the National Vocational Qualifications of Jamaica (NVQ-J). Primary education lasts six years and caters for children 6-11, secondary education consists of two cycles: the first covers grades 7-9, and the second cycle grades 10 and 11. Some high schools offer grades 7-11; and some also offer grades 12-13 for students taking the GCE A-level examinations. Vocational courses are offered at technical high schools (Atchoarena and McArdle, 1999; UNESCO, 2010d). Allbrook and Dusen (1996) have, however, argued that Technical High Schools in Jamaica are really functioning as vocational high schools. The schools are having trouble following the NCTVET curricula because they lack much of the equipments needed to acquire the hands-on skills demanded in the technical areas. Concerns are also expressed about the sustainability of the vocational programmes offered in the schools, given the weak performances of the students in mathematics and science; the technical schools were also observed to have difficulties in preparing students for higher

education as well as the world of work. The emphasis on VET route seems not distinct in Jamaica as it is in Nigeria.

3.10.2 Brazil

According to UNESCO (2010e) the responsibility for the administration and management of the education system in Brazil is shared between the federal government, states and municipalities. Pre-primary and primary education is jointly coordinated by the municipalities, the states and the Federal District. Secondary education is jointly managed by the states and the Federal District. Vocational and technical education is under the states and the Federal Government, while higher education is solely managed by the Central government. Participation of the private sector in education and training delivery is allowed upon government's evaluation and approval. Education is jointly funded by the public sector (through direct and indirect administration agencies at the federal, state and municipal government levels), and the private sector. Just as with the case in Nigeria and most countries whose education and training literature were reviewed, basic education in Brazil is compulsory up to the Lower secondary school. Elementary education however is of 5-year duration (1^{st} to 5^{th} grade); while Lower secondary is 4 years (6^{th} to 9^{th} grade). Upper secondary education of 3-year duration is streamed into general secondary and vocational and technological education. Vocational secondary education in some cases according to UNESCO report can last four years, depending on the programme. Brazil's education and training structure and management have close similarities with that of Nigeria.

3.11 The Need for Institutional change in CST Approach in Nigeria

Fact emerging from literature on the approach to VET in Nigeria (chapter 2) reveals that construction sector craft skills training is not accorded the specific attention it deserves. For construction related CST to achieve the expected result, there is need for a change in the existing institution. 'Institutions' are defined as the rules of the game in a society, together with their enforcement arrangements (North, 1990). According to North, they include both formal rules such as laws and constitutions, and informal rules such as conventions and norms.

In other to achieve effectiveness in the training and development of construction related crafts skills training and development in Nigeria, there is need for a change in the strategies for regulating and monitoring training scheme. The present approach to craft skills training in the construction sector might be responsible for the prevalent skills shortage and knowledge gap in the sector.

Table 3.2 depicts the link between research methods and datasets for achieving the study aim and objectives and answering the questions of the study.

Table 3.2: Research aim, Objectives and Strategy

Research Aim	Research Objectives	Research Questions	Research Approach/Datasets
To identify the problems confronting construction related vocational skills training and development; with the view to developing a framework for the training and development of construction craft skills in the Nigerian Construction sector.	1. To examine the past and current methods of vocational education and training (VET) for craftsmen.	1. What skill training method(s) proved effective in producing needed craftsmen for the Nigerian construction sector in the past?	Secondary research: Literature Primary research: Questionnaire survey; Semi structured interview
	2. To determine the factors responsible for crafts skills shortage and skills gap in the Nigerian construction sector.	2. What are the factors responsible for craft skills shortages and skills gap in the Nigerian construction sector?	Secondary research: Literature; Document Analysis Primary research: Questionnaire; Interview enquiry.
	3. To ascertain the problems militating against VET and their effects on the knowledge gaps among craftspeople in the Nigerian construction industry	3. In what way(s) are the problems confronting VET contributing to knowledge gaps among construction craft workers in Nigeria?	Secondary research: Literature; Document Analysis Primary research: Questionnaire; Interview enquiry.
	4. To investigate reason(s) why the younger generation in Nigeria is not showing interest in construction related vocational training/skills acquisition and proposed strategies for motivating and mobilising them.	4. Why are most Nigerian youth not showing interest in construction related skills acquisition and how best can they be mobilised for skills training?	Secondary research: Literature Primary research: Questionnaire survey; Semi structured interview
	5. To review the efforts and innovations of selected countries on vocational skills training with the view to adopting relevant strategies in the emerging framework.	5. What effective strategies are other countries adopting to address construction crafts skills training to curb labour shortages?	Secondary research: Literature
	6. To develop and validate a functional framework for training and development of construction related craftspeople in the Nigerian construction sector.	6. How can the organized private sector positively impact craft skills training and development in the Nigerian construction sector?	Secondary research: Literature Primary research: Questionnaire survey; Semi structured interview

3.12 Chapter Summary

This Chapter features the review of related literature on the approaches to education and training in selected countries with particular focus on the system of TVET. The literature search cut across the five UNESCO regional groupings which include Africa, the Arab States, Asia and the Pacific, Europe and North America and the Caribbean and Latin America. Three (3) countries namely: South Africa, Ghana and Benin were selected from the African Region; Three (3): Egypt, Saudi Arabia and Kuwait from the Arab States and six (6): India, China, Taiwan, Korea, Japan and Australia from the Asia and the Pacific region. Four (4) countries were selected from the Europe and North America region, namely: Germany, United Kingdom, France and United States; and two (2): Jamaica and Brazil from the Caribbean and Latin America region. VET approach in some of the countries made adequate provisions for construction craft skills training, the chapter observes that in order to achieve effectiveness; there is a need for institutional change in the Nigerian approach to VET in the construction sector. The uniqueness of the TVET delivery systems in some of the countries were noted for possible influence on the skills training and development framework which the research aims at formulating for the Nigerian Construction sector. The chapter closes with a Table (Table 3.2) which links the research methods and datasets to the aim, objectives and research questions.

4.0 Research Design and Methodology

4.1 Aims of the Chapter

The goal of this chapter is to describe the methods and methodology employed in the conduct of this research. The chapter commences with an overview of the meaning and philosophy of research. This is followed by a discussion of the research design and an explanation of the methodological framework approach to the research. The process and rationale for the selected research approach and the conceptual theoretical framework for the research are also explained.

4.2 Introduction

The phrase "research" is used to describe a number of and often overlapping activities involving a search for information (UI, 2011). Neuman 2006 views research in simple terms as a way of going about finding answers to questions. Grinnell (1997) describes it as a systematic study in some field of knowledge, undertaken to establish facts or principles. From the foregoing it could be inferred that research is a detailed study of a subject with the view to discovering new information or attain a new understanding in the phenomenon.

Research methods and methodology are two phenomena which are closely related and interdependent, but different. Neuman (2006) describes research methods as sets of specific techniques for selecting cases, measuring and observing aspects of social life, gathering and refining data, analyzing the data and reporting the results; while Bryman (2008) views research method simply as a technique for collecting data which can involve a specific instrument such as self completion questionnaire or a structured interview schedule. Conversely methodology is broader than methods and encompasses methods. It involves the understanding of the social organization context, philosophical assumptions, ethical principles, and political issues of the enquiry of the social researchers who use methods (Neuman, 2006).

Succinctly as opined by Neuman (2006), social research links methods with methodologies; being the collection of both that researchers applies systematically to produce scientifically based knowledge about the social world. Cresswell (2007)

distinguished methodology from methods by defining methodology as the strategy or plan of action that links methods to outcomes, and which governs the researcher's choice and use of methods (e.g., survey research, experimental research, ethnography, etc). He described methods as the techniques and procedures the researcher intend to use for eliciting data for the study (e.g., questionnaire, interview, focus group, etc).

Conducting a research therefore requires following a sequence of steps which vary with the type of the particular type of research. Neuman (2006) classified research into two; which include:

- Basic Research - which is a research designed to advance fundamental knowledge about how the world works and to build or test theoretical explanations.
- Applied Research - designed to offer practical solutions to a concrete problem or address the immediate and specific needs of the community.

Neuman (2006) further elaborates on applied research to include three major types: evaluation research, action research and social impact assessment research.

Accordingly, Blaxter *et al.*, (2003) expatiates on kinds of research by identifying types of research to include:

- pure, applied and strategic research;
- descriptive, explanatory and evaluation research;
- exploratory, testing-out and problem-solving research;
- covert, and collaborative research;
- basic, applied, instrumental, participatory and action research.

This research falls under the applied research group in that it is aimed at addressing the identified problems with the training and development of crafts skills in the Nigerian construction sector. The conduct of an applied research is targeted at addressing a specific concern or to offer solutions to a problem of an organization, employer or the community. Rarely do applied research build, test or connect to a larger theory, develop a long-term general understanding, or carry out a large-scale investigation that

might span years; but relies on a quick, small-scale study that provides practical results that can be used or applied in the short term (Neuman, 2006).

From the forgoing, it could also be deduced that the convergent views from the various classifications of research types is that research works are planned, cautious, logical and dependable ways of discovery or deepening knowledge; and thus follows a process.

4.3 Research philosophy

An understanding of philosophical issues is important in any research. Easterby-Smith *et al.,* (1991) submit that knowledge of research philosophy will enable and aids the researcher to evaluate different methodologies and methods. The researcher can identify the limitations of different approaches from the early stage and avoid inappropriate choice. It also helps the creativity and innovation of the researcher in the selection and adaptation of methods which might be previously outside his or her field or experience. The exploration of research philosophy is also significant with particular reference to research methodology because it can help the researcher to refine and specify the research methods to be used in a study. It helps in clarifying the overall research strategies such as type of data to be collected and its source, the way such data is interpreted, and how it assists in answering the research questions. According to Creswell (2003), consideration and classification of research methods can be at different levels, the most basic of which is the philosophical level. Thomas (2003) opine that the methodological paradigms most commonly used focus on the differences between quantitative research, which is associated with the philosophical beliefs of positivism, and qualitative research, which is related to the post-positivists or the constructivists. Denzin and Lincoln (2000) stated that the researcher's experience, personal beliefs and understanding of philosophy may have some influence on the method adopted in a research. The areas for consideration when deciding on a research method as listed by Trochim (2006) include:

- the philosophical paradigm and goal of the research;
- the nature of the phenomenon of interest;
- the level and nature of the research questions and

- practical considerations related to the research environment and the efficient use of resources.

Similarly, Blaikie (2007) opine that undertaking a social enquiry necessitates a number of decisions which include:

- the choice of the research problem to be investigated;
- the determination of the research question or questions to be answered;
- the research strategy or strategies to be used to answer the questions of the research;
- the posture the researcher is to adopt towards the phenomenon of study; and
- the relevant and inherent research paradigm containing assumptions about reality and how it can be studied.

Choices in each case however, depend mainly on the nature of the research.

Furthermore, Dainty (2008) argued that research methodology in social enquiry refers to far more than the methods adopted in a particular study, it encompasses the rationale and the philosophical assumptions that underlie a particular study; these in turn, influence the actual research methods that are used to investigate a problem and to collect, analyze and interpret data. Thus, emphasizing the fact that research methods cannot be viewed in isolation from the ontological and epistemological position adopted by the researcher and methods are inevitably intertwined with the research strategy.

4.3.1 Study Methodology

The problem of constructing the design of a research is the major problem faced by a researcher after the objectives of the research has been determined. Consequently, the study methodology techniques to be adopted for a particular problem must be mindful of the scope and nature of the data to be collected; furthermore it is imperative to note that data and methods of capturing data are inextricably interdependent (Ritchie and Lewis, 2003). Approaches to research are often subject to two arguments which usually are aligned with differing paradigms discussed below.

4.3.1.1 Quantitative and Qualitative Approaches

The two main paradigms in social science research, as perceived by Cresswell (2003) are known as positivism (quantitative) and phenomenalism (qualitative). Incidentally, the two paradigms are associated with variants; the positivist paradigm, for instance, is also referred to as empiricist, scientific, experimental or quantitative. Those of this school of thought agree that only those phenomena that are observable (with the aid of an instrument) can be adjudged to be valid knowledge and culminates in translation of the natural to the social sciences. Quantitative (positivism) approach embraces a belief that the procedures and methods of natural sciences are adequate and appropriate to the social sciences domain. Phenomenology (qualitative survey) proponents are of contrary views, they agued that Quantitative survey approach is inappropriate for studying human and that it seems to present a reductionist and mechanistic view of people (Shipman, 1972; Silverman, 2005; Dainty, 2008). Conversely, phenomenologist employs naturalistic inquiry, constructionism, critical interpretivism or qualitative approach (Bryman and Bell, 2007; Mason, 2002). In the view of Phenomenologists, the world is socially constructed and subjective (Blaikie, 2007; Robson, 2002). They opined that quantitative approach gives little or no attention to the context. However, qualitative approach tends to focus on the interpretation of individuals behaviours, those of others and of their own environment (Bryman and Bell, 2007; Flick, 2002). Cohen, Manion and Morrison (2000) observe that in most educational related researches; both qualitative and quantitative approaches are relevant.

Table 4.1 depicts fundamental differences between both research strategies.

Table 4.1: Fundamental differences between quantitative and qualitative research strategies (Adapted from Bryman, 2008).

Research Strategy	Orientation to role of theory in research	Epistemological orientation	Ontological orientation
Quantitative	Deductive; testing of theory	Natural science model of 'Positivism'	Objectivism
Qualitative	Inductive; generation of theory	Interpretivism	Constructionism

4.3.1.2 Quantitative Research

Quantitative research uses a language of variables and hypotheses and relies on a positivist approach to social science; it applies 'reconstructed logic', following a linear research path and rules. Quantitative researchers emphasize precisely measuring variables and testing hypotheses that are linked to general causal explanations (Punch, 2005; Neuman, 2006). In the same vein, Creswell (2003) defines a quantitative approach as one in which the investigator primarily uses post-positivist claims for developing knowledge - 'cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observations, and the test of theories'; employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data. Bryman (2008) opined that quantitative research can be construed as a research strategy that emphasizes quantification in the collection and analysis of data, and has characteristics that:

- entails a deductive approach to the relationship between theory and research, in which the accent is placed on the testing of theories;
- embodies a view of social reality as an external, objective reality; and
- incorporates the practices and norms of the natural scientific model and of positivism in particular.

4.3.1.3 Qualitative Research

The approach in qualitative research uses a language of cases and contexts; it examines social processes and cases in their social context, and look at interpretations or the creation of meaning in specific settings. The qualitative researcher looks at social life from multiple points of view and explains how people construct identities. Only rarely do they use variables or test hypotheses, or convert social life into numbers, but borrow ideas from the people they study and place them within the context of a natural setting. They examine motifs, themes, distinctions, and ideas rather than variables, and they adopt the inductive approach or grounded theory (Neuman, 2006; Punch, 2005). Similarly, Creswell (2003) defines a qualitative

approach as one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives - 'the multiple meanings of individual experiences, meanings socially and historically constructed, with an intent of developing a theory or pattern'; or advocacy/participatory perspectives - 'political, issue-oriented, collaborative, or change oriented' or both. The approach uses strategies of inquiry such as narratives, phenomenologies, ethnographies, grounded theory studies, or case studies. The researcher collects open-ended, emerging data with the primary intent of developing themes from the data. Qualitative research strategy emphasizes words rather than quantification in the collection and analysis of data. The characteristics features of qualitative research as highlighted by Bryman (2008) are that:

- it predominantly emphasizes an inductive approach to the relationship between theory and research, in which emphasis is placed on the generation of theories;
- it has particular preference for an emphasis on the ways in which individuals interpret their social world rather than the norms of the natural scientific model of positivism; and
- it embodies a view of social reality as a constantly shifting emergent property of individuals' creation.

Data in qualitative research involve documenting real events, recording what people say in form of words, gestures and tones. It also includes observing specific behaviours, studying written documents and examining visual images.

Figure 4.1 illustrates the characteristics of both Quantitative and Qualitative research.

4.3.1.4 The mixed methods approach

According to Creswell (2003), a mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds, such as; 'consequence-oriented, problem-centered, and pluralistic'. It employs strategies of inquiry that involve collecting quantitative and qualitative data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information using instruments, as well as text information using

interviews; so that the final database represents both quantitative and qualitative information.

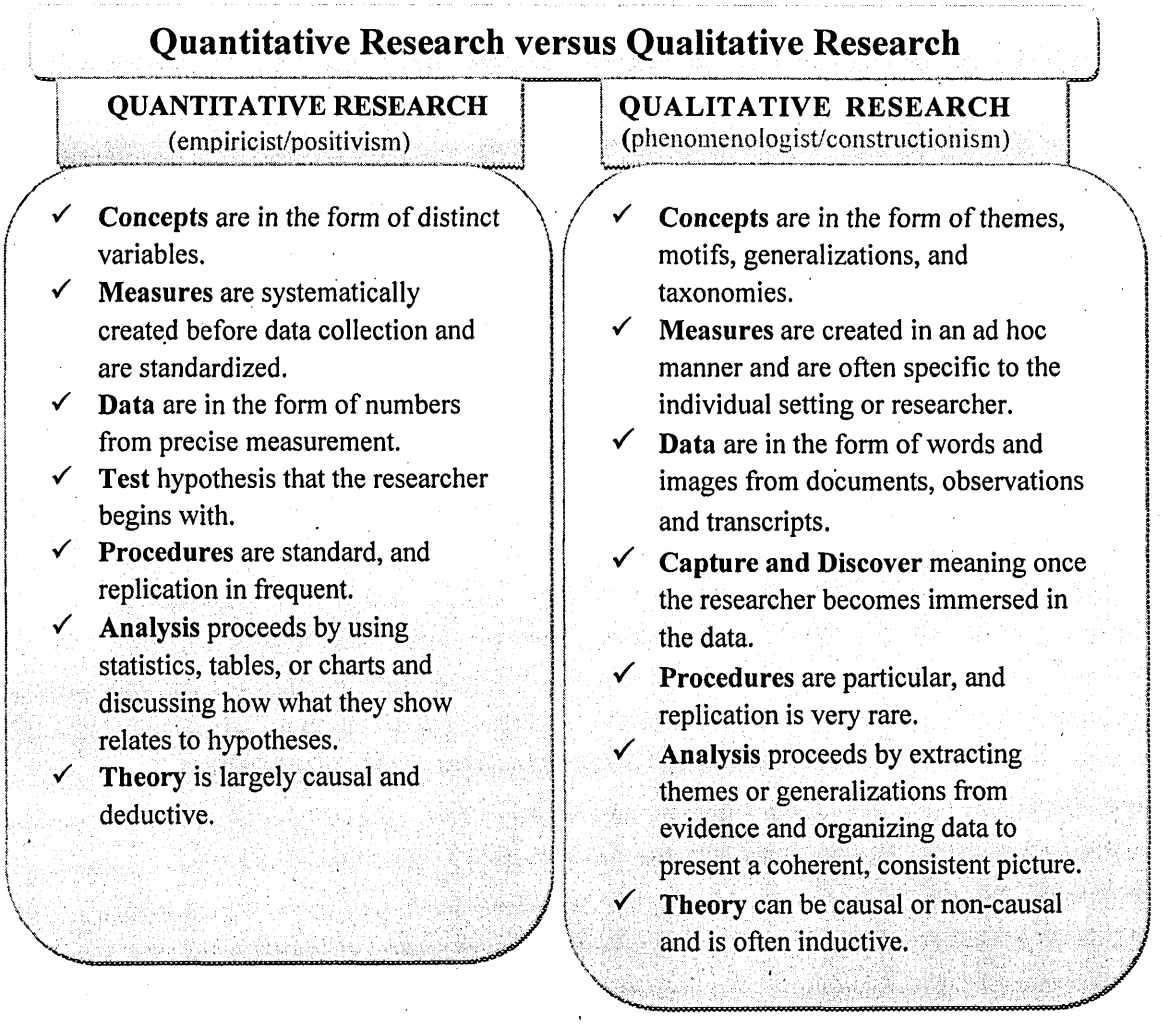

Figure 4.1: Characteristics of Quantitative and Qualitative Research (Adapted from Nueman, 2006).

4.4 Research Design

A major task in designing a piece of social research is to work out how to answer the research questions. Neuman (2006) indicates that Quantitative researchers are more concerned about issues of design, measurement, and sampling because their deductive approach emphasizes detailed planning prior to data collection and analysis.

Qualitative researchers on the other hand, are more concerned about issues of the richness, texture, and feeling of raw data because their inductive approach emphasizes developing insights and generalizations out of the data collected. Once the research questions have been stabilized and adequately structured such that they are satisfactory in terms of the empirical and other criteria; the research can then proceed from concept to method. The connection from content to method is through data; thoughts should be given to what data will be needed, how will they be collected and analyzed (Punch, 2005; Bryman, 2008).

Figure 4.2 illustrates the scenario.

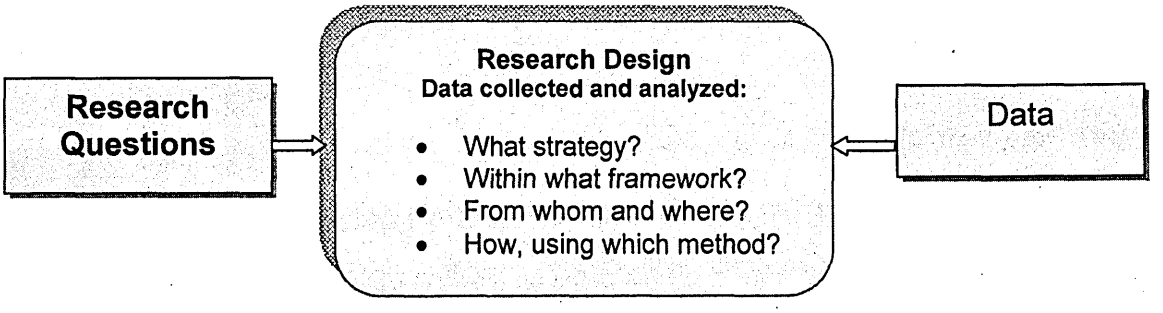

Figure 4.2 Illustration of how research design connects research questions to data (Adapted from Punch 2005)

It could be inferred from Figure 4.2 that research design is the road map for a piece of research which situates the researcher in the empirical world and connects the research questions to data, showing how the research questions will be connected to the data; and what tools and procedures to use in answering them. Research design therefore features four main thoughts which include: the strategy to be followed; the conceptual framework context for the piece of research; the question of who or what will be studied; and the procedures to be used for collecting and analyzing empirical materials - all reflecting the planning of how the data will be collected and analyzed. A research design thus provides a framework for the collection and analysis of data, and its choice reflects decisions about the priority being given to a range of dimensions of the research process. (Punch, 2005; Cresswell, 2007; Bryman, 2008). The strategies for the design of this research are discussed under the appropriate sections in this chapter.

4.4.1 Quantitative and Quantitative approach

The need to gather a comprehensive and robust data from the various strata of stakeholders relevant to this research informs the preference for the use of both quantitative and qualitative strategies. Thus, the mixed-method approach was adopted for the study. The position for this research therefore, is that, none of the two approaches is inferior to the other; the two methods are adopted to complement each other. Blaikie (2007) observes that by observing a social phenomenon from different angles or viewpoints, which is termed triangulation; the quantitative and qualitative social researchers are more likely to see all aspects of it. It is believed that exploring the two methodological approaches would foster a clearer understanding of the subject under investigation (Hughes, 2008); and thus afford an in-depth overview of the challenges of vocational training and education of site operatives in the Nigerian construction industry. In practice, few studies are strictly quantitative or qualitative in nature. Bryman (2008) opines that where the approaches may be positively combined, they promote certain characteristics:

1. Quantitative research can be used to facilitate qualitative research to generalize findings to a large sample, or to identify groups who warrant in-depth qualitative study.
2. Qualitative research may facilitate interpretation of relationships between variables.
3. Qualitative research can be used to facilitate quantitative research by acting as a precursor, highlighting important aspects for a later survey.
4. The two approaches can be combined so that methods from one paradigm fill the gaps left by the other.
5. Combination of the approaches can aid decisions regarding the number of cases to be employed.
6. The approaches may be combined to allow the examination of both structure and process, the researcher's and the subject's perspective; allow cross-sectional and longitudinal data to be collected, and both to generate and test theory.

7. The two approaches may be combined so that 'micro' and 'macro' levels of the objects under study are examined.

Hesse-Biber and Leavy (2006) agree to the benefits inherent in combining the two approaches; they identified five important reasons why researchers might adopt a mixed-method approach. These include:

1. **Triangulation:** In this strategy, the researcher is looking for a 'convergence' of the research findings to enhance credibility of the research findings. The method involves using more that one approach to study a single research question.
2. **Initiation:** Another reason for the use mixed-method is that of 'initiation'; where a given research findings raise issues or contain contradictions requiring clarification. A new study is then initiated to add new insights to the understanding of the phenomenon under investigation.
3. **Complementarity:** This is a strategy where the researcher seeks to gain a fuller understanding of the research problem and/or to clarify a given research result. The mixed method helps the researcher's total understanding of the research problem.
4. **Expansion:** Mixed-method result in expansion which facilitates an extension of the breadth and range of the study.
5. **Development:** This is a situation whereby results from one method help develop or inform the other method.

Bryman and Bell (2007) opined that the combination of quantitative and qualitative research design can produce a general picture of the subject under focus. Since almost all data collection techniques are prone to some level of biases, data collection using multiple sources and multi-methods lend rigor to research. When responses collected through interviews and questionnaires are correlated with one another, the research tends to have more confidence about the adequacy or goodness of the collected data (Easterby-Smith *et al.,* 1991).

4.4.2 Triangulation in the research process

According to Burns (2000), triangulation means the use of two methods of data collection in the study of some aspects of human behaviour. Triangulation ensures the credibility of the research findings (Hesse-Biber and Leavy, 2006). Triangulation techniques expatiates more fully, the richness and complexity of human behaviour by studying it from more than one view point using a variety of methods.

The mixed method (quantitative and qualitative) approach was adopted in the conduct of this research for the purpose of ensuring triangulation and gaining a clearer understanding of the research problem. Other justification for using the approach is to lend rigor to the research; and thus facilitate the accomplishment of the research goal and provide adequate answer to the questions of the research.

The quantitative approach gathered raw data through questionnaires while the qualitative elicited data through semi-structured interviews and analysis of relevant documents.

Figure 4.3 illustrates the sequential approach in the application of mixed method design in the study.

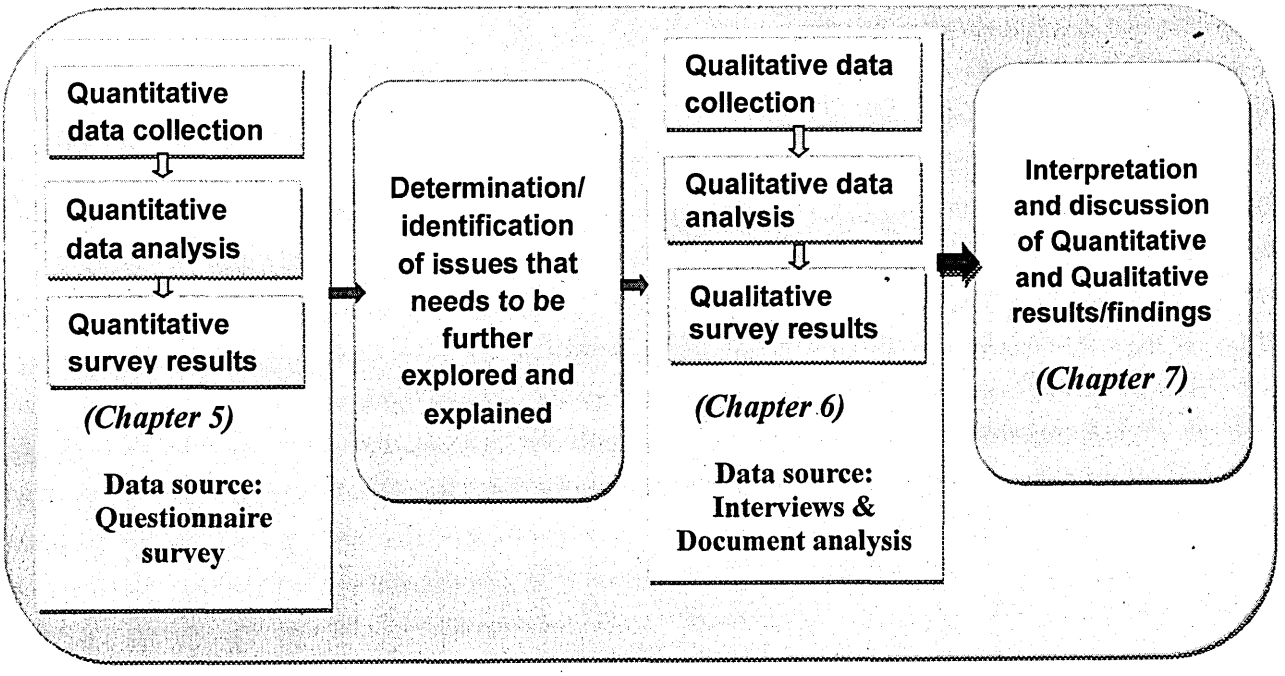

Figure 4.3: Illustration of process of application of mixed method design in the study.

4.4.3 Quantitative and Qualitative Research Design adopted for the study

Yin (2009); Punch (2005) and Nueman (2006) opine that the selection of an approach or strategy for any particular study is premised on certain criteria which include:

- research questions types
- research focus
- investigator's control over actual behavioural events

The particular research design adopted for this study is discussed under sections 4.4.3.1 and 4.4.3.2.

4.4.3.1 Quantitative Design

Reviewing the positions of Punch (2005); Ismail (2005); Neuman (2006); and Bryman (2008) on the approaches to designs in quantitative research; two major classes of approaches namely: the cause-and-effect and a non cause-and-effect strategies are identified. The cause-and-effect research requires either experimental, ex-post-facto or a time series design for longitudinal observations; while a non cause-and-effect study involves a pure descriptive approach for describing the trend of relationships among variables. The descriptive approach entails the survey, correlational, R&D and evaluation research. The characteristics features of the two strategies are illustrated in Table 4.2.

The descriptive method, using the survey research approach is adopted for the study; most educational research methods are descriptive in nature (Cohen, Manion and Morrison, 2000). In the view of Oppenheim (1992) descriptive studies are designed to describe and interpret the situation; it describes what proportion of the population has certain opinion about the subject being researched. They are not primarily designed to show or explain causal relationship between variables. A descriptive survey method is selected to determine the opinions and the degree of importance that stakeholders placed on the various aspects of Training and Education of construction site operatives as informed by the aim and objectives of the research.

Table 4.2: Characteristics of the two Quantitative research approaches

Quantitative Research Grouping	Quantitative Research Types	Characteristic features
Cause-and Effect Research	Pure Experimental	Facilitates manipulation of an independent variable in order to asses the effect on the dependent variable
	Quasi Experimental	Same characteristics with above, but with no randomization of subjects between independent variable
	Ex-post-facto or causal-comparative	Possible to establish causal relation using causal-comparable method but not as strong as in the experimental method.
	Time series design	Cause-and-effect relationship is established by a series of observations. With records taken for a group of subjects before and after.
Descriptive Research	Survey research	Focuses of describing a phenomenon
	Correlational research	Focuses on examining the extent to which difference in one variable or characteristics are related to those of others
	Evaluation research	Focuses on evaluating an event by means of other listed approaches to make judgment about relevance or usefulness.
	R & D research type	Focuses on developing a prototype and a validation process to justify relevance or usefulness.

Adapted from: Ismail (2005)

4.4.3.2 Qualitative Design

Drawing on the convergent views of Punch (2005); Leedy & Ormrod (2005) Neuman (2006); Bryman (2008), designs in qualitative research can be classified into five main groups, namely: case studies, ethnographies, phenomenological studies, document content analysis or grounded theory.

Table 4.3 presents the characteristic features of major types of Qualitative design approaches.

The qualitative design approach adopted for this research however includes the Interview and document content analysis.

1. Qualitative Interview

Data collection using this approach is discussed in detail in section 4.12.2.

2. Document analysis.

Documents, either historical or contemporary, provide a rich source of data to the social researcher. One distinguishing characteristics of the contemporary society may well be the vast array of 'documentary evidences' which are routinely compiled and retained. Documentary sources of data could be useful in various ways in social research. Some studies might depend entirely on documentary data, with such data being the study focus in their own right; while in other studies such as grounded theory or case studies, documentary data may be collected in conjunction with interviews, observations or questionnaire survey. Documents can provide a very useful source of data in conjunction with other data for the purpose of triangulation, where an intersecting set of different methods and data types is relevant in a single study (Denzin and Lincoln, 2000; Punch, 2005; Bryman, 2008). Relevant issues on the criteria for the selection of documents and the procedures for the analyses of selected documents are addressed under appropriate sections in chapter six (6) of this report.

4.5 Research Model and Process for the study

The designed research model and process flowcharts are depicted in figures 4.4 and 4.5. Figure 4.4 illustrates the specific phases in the research from problem identification to the conclusion and recommendation, while figure 4.5 depicts the sequential processes in the research in a broader sense; commencing from the research proposal (which include problem identification, research goal and objectives), in-depth literature review, conceptual framework phase up to research conclusion and indicating the relationship of each stage to the thesis compilation and writing-up.

Table 4.3: Characteristics of major types of Qualitative design approaches

Design	Goal	Focus	Data Collection Method	Data Analysis Method
Ethnographical Study	To comprehend how behaviours reflect the culture of a group	A specific field site where a group of people share a common culture	• Structured or unstructured interviews with informants • Participant observation • Artifact & document collection	• Identification of significant phenomena and underlying structures and beliefs • Organization of data into a logical entity (e.g., typical day, chronology)
Phenomenological Study	To understand an incident from the participants' view-point	A particular phenomenon as it is typically perceived and lived by people	• Purposeful sampling of 5-25 participants • In-depth unstructured interviews	• Identification of 'meaning units' that reflect various aspects of the participants experiences • Integration of the meaning units into 'typical' experiences
Case Study	To understand a person's or situation (or a unit or limited number) in-depth	One or a few cases within its or their natural setting	• Interviews • Observations • Examination of appropriate documents and/audio-visual materials	• Categorization and interpretation of data in terms of common themes • Synthesis into an overall portrait of the case(s)
Grounded Theory	To derive a theory from data collected in a natural setting	A process, including human actions and interactions and how they result from and influence one another	• Interviews • Other relevant data sources	• Prescribed and systematic method of coding the data into categories and identifying interrelationships • Continual interweaving of data collection and data analysis • Construction of theory from the categories and interrelationships
Document/Content Analysis	To identify the specific characteristics of a body of material(s)	Available and relevant visual, verbal or behvioural form of communication	• Identification and possible sampling of the specific material to be analyzed • Coding of the material in terms of predermined and precisely defined features	• Descriptive or inferential statistical analyses as appropriate to answer research questions • Tabulation of the frequency of each feature

Adapted from: Leedy & Ormrod (2005)

The study was designed to have five (5) different surveys, each of which has a contributory factor towards the next. The five surveys are grouped into three for the purpose of this research; and include:

1. Pre-study or Pilot surveys;
2. Stakeholders survey and
3. Experts validation survey.

Each of the survey stages has its specific objectives and is discussed in this section. A detailed description of the research methodology is also presented in the section.

4.6 Pre-study or Pilot surveys

The conduct of pre-study or mini-study is always a desirable effort before the commencement of any major study; such studies serve as a means of carrying out a trial of the methods or procedures to be employed in the pursuit of the achievement of the goals of the research. The mini-versions or pre-study editions of a full-scale study is termed 'pilot studies' or 'feasibility studies' (Teijlingen and Hundley, 2001). Bryman (2008) opines that piloting has a role in ensuring that the research instrument as a whole functions well. In the view of Teijlingen and Hundley (2001), the term pilot study is used in two different ways in social science research. It can refer to so-called feasibility studies which are "small scale version(s), or trial run(s), done in preparation for the major or full-scale study; it can also be the pre testing or 'trying out' of a particular research instrument. A striking advantage of conducting a pilot study is that it might give a prior warning or indication about where the research project could fail or whether the proposed methods or instruments are too complicated or inappropriate. Pilot studies allow researchers to conduct a preliminary analysis before embarking on a full-scale study. It helps in identifying any potential flaws and short comings in the research design methods and prevent a waste of valuable time in modification of the methods later.

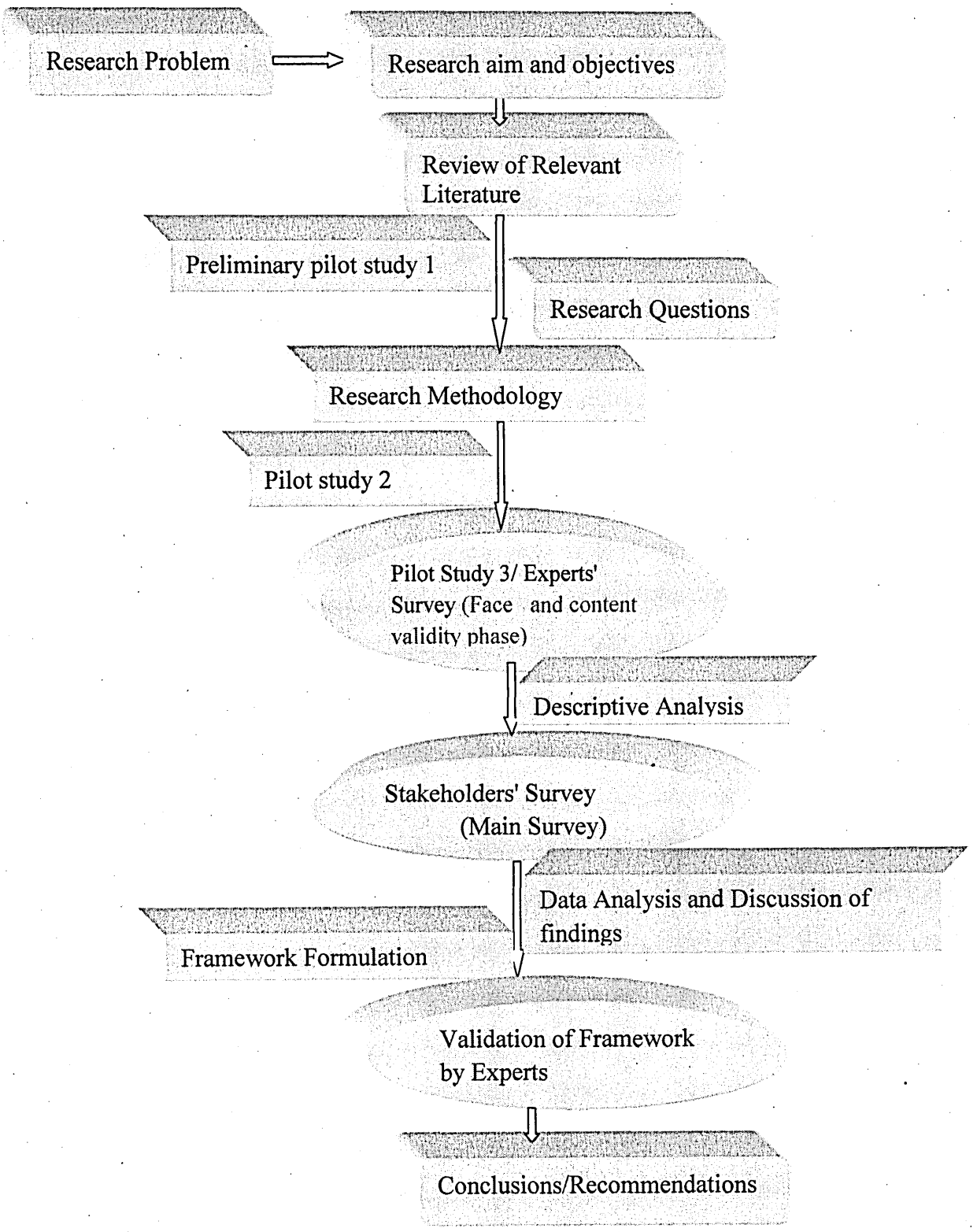

Figure 4.4: Research Model

Some of the uses or reasons for conducting pilot studies in survey research as indicated by Bryman (2008) and Woken (2009) include the following:

- It equips researcher with ideas, approaches, and clues that may not have been foreseen before conducting the pilot study; such ideas and clues increase the chances of getting clearer findings in the main study.
- It facilitates a preliminary testing of the hypotheses which eventually leads to a more precise testing in the main study, and may inform the changing of some hypotheses, dropping some, or developing new hypotheses.
- It helps in identifying questions that make respondents to interview surveys feel uncomfortable and to detect any tendency for respondents' interest to be lost at certain junctures.
- It allows for a prior evaluation of the planned data analysis techniques with the view to confirming their adequacy, and may inform necessary adjustment to data collection procedures. Thus facilitating efficiency in the analyses of data in the main study.
- Piloting an interview schedule can provide interviewers with some experience of using it and can equip them with a greater sense of confidence.
- Pilot studies can reduce unanticipated problems to a minimum, because it provides the researcher with the opportunity of redesigning parts of the study to overcome the flaws revealed through the preliminary study.

Moser and Kalton (1985); and Punch (2005) similarly opined that pilot survey will help to clarify issues and provide guidance on the adequacy of the sampling frame, check that questions are un-ambiguous and easily understood; identify anomalies, ascertain the suitability of the data collection tool, and ensure that questionnaire can be completed within reasonable time.

4.6.1 Pilot studies conducted in this study

Pilot studies conducted in the research were in three (3) stages; namely:

- Pilot Study 1 (Pre-test survey/Experts survey) - this phase of the pilot study was aimed at gathering information on the general feasibility of the study, relevance of research focus to the Nigeria construction industry; and to ascertain the relevance of proposed research participants/population to the achievement of the research goal.
- Pilot Study 2 (Preliminary survey) - this phase of the pilot study aimed at gathering further relevant data from a selected sample of the target study population to ascertain that the problem the research aimed at addressing actually exist and that the selected research strategy is suitable. Furthermore to confirm that the ultimate goal of the research is relevant to the Nigerian Construction sector.
- Pilot Study 3 - the goal of this phase of the pilot study was to test the data collecting instrument with the view to ensuring the adequacy and quality of the data collection instrument design.

Each phase of the pilot studies is further explained in the following sections.

4.6.1.1 Pilot Study 1

The focus of this stage is to sample the opinions of renowned Professionals who have made 'mark' both in practice and in manpower development on the existence and severity of the phenomenon or problem which the research aimed at addressing. The pilot study also aimed at familiarising with the research and the research environment. Other objectives of the phase include eliciting opinions on:

- relevance of the various categories of stakeholders proposed to be included in the main survey to the achievement of the study objectives;
- adequacy of the focus of the main study and items proposed to be featured or included in the main data collection tools to ensure an in-depth coverage of the subject matter; and thus

- facilitate the eventual formulation of a functional Crafts skills training and development Framework for construction related Artisans' Careers in the Nigerian Construction sector.

The procedure for eliciting information at this phase includes:

1. Telephone conversations and open ended questionnaire. Six professionals were purposively selected for this phase of the study. The criteria used for selecting the participants include:

- professional practice experience in the Nigerian construction industry
- previous input in manpower training and development issues in the Nigerian construction sector
- current involvement with vocational education and training (VET) in Nigeria

Feedback from the pilot study 1 revealed:

- that the training of construction related crafts skills in Nigeria is confronted with diverse problems ranging from non-commitment of the private sector to lack of focus and vision for crafts workforce training and development in the sector;
- that the existing construction crafts skills training methods are not producing the needed competent artisans to meet the sector's crafts skills labour need.
- absence of a framework that specifically addresses crafts skills training in the sector
- the stakeholders that are relevant for inclusion in the main survey
- adequacy of the study focus and objectives
- appropriateness of the items proposed to be featured in the data collection instrument

The study assisted in the re-articulation of the research problem and gave further direction to the data collection approaches.

2. Conference presentations:

A further approach in the preliminary piloting of the research was the presentations of the research proposal, one at a conference and the other at a workshop; namely: the

Association of Researchers in Construction Management (ARCOM) Twenty-fifth Annual Conference held at Albert Hall, Nottingham on September 7-9, 2009; and ARCOM Research Workshop on Decision making, held at the University of Manchester on Wednesday February 10, 2010. Present at the Conference and Workshop were experienced researchers, construction management practitioners, academicians, and other PhD researchers in construction management. The objectives of the conference and workshop presentations include:

- To present the research problem and basis as gathered from literature search and from the initial pilot study.
- To assess the adequacy of the research design and approach.
- To subject the whole research idea to the scrutiny of experienced researchers with the view to determining the suitability and adequacy of the proposed data collection and analysis methods.
- To ascertain that the planned or expected study contribution to the body of knowledge is worthy enough for a Doctorate degree.

Feedback from both the conference and workshop indicated that the research project is viable for addressing a crucial issue of crafts skills training in the construction sector; and contributed to the enhancement of the concept of the crafts skills training and development framework.

4.6.1.2 Pilot Study 2

Based on the input of the participating experts from the pre-test survey stage (Pilot study 1) discussed above; a questionnaire was designed and drawn-up to gather further information on the relevance and importance of the research aim and objectives and its significance in addressing crafts skills training problems in the Nigerian construction industry. It further aimed to ascertain how the Nigerian vocational education system is faring in producing the needed craftspeople for the Construction sector; and to sample opinions on the relevance of the research's ultimate objective of formulating a functional framework for skills training. Further goals of this stage of Piloting include:

- to sample the opinion of selected representatives of the target population for the main survey on the problems of crafts skills training and shortages in Nigerian construction industry.
- to determine the effects of crafts skills training problems on crafts skills shortages in the Nigerian construction sector.
- to ascertain the opinions of the selected group on the state of VET and the perceived reasons for the present state.

The questionnaire used for data collection in Pilot 2 was in three sections. Section 'A' gathered information on the professional background and working experience of the respondents, section 'B' was structured in Likert's scale 1-4; to gather data on the issues related to the study. Section 'C' was designed to be open-ended to allow for opinions on why the younger generation seems not to be showing interest in construction related skills acquisition and possible strategies for mobilizing them. The section also sought opinions of respondents on issues they deemed necessary to be addressed in the study that could facilitate the achievement of the study aim and objectives. The questionnaire was administered on Twenty four (24) selected participants with 21 responses.

The criteria for the selection of participants in Pilot study 2 include those for Pilot study 1, in addition to willingness to participate and volunteer relevant information.

Pilot study 2 further confirmed the data gathered through study 1 and indicated that the VET problems in Nigeria affect the supply of competent skilled crafts men and women to the construction sector and indicated that the study's main objective of formulating a framework for the training and development of crafts related skills in the Nigeria Construction sector is relevant.

The participants were drawn from the various strata of the target population for the main study, and the study assisted in gathering further information that were useful in the design of the data collection instrument for the main study. The study also confirmed the readiness of the participants to contribute to the research project when called to do so.

Three (3) conference papers were developed and written based on the data collected from this phase of the pilot study, namely:

1. Impact of Vocational Training on Skilled Labour shortage within the Nigeria Construction Sector - presented at the CIB Conference held at: The Lowry, Salford Quays, UK 10-13 May 2010.
2. An Enquiry into the Challenges of Skills Training in Nigerian Construction Industry - presented at the Third International World of Construction Project Management Conference held at: the University of Coventry, 20th-22nd October 2010.
3. Relevance of A Best Practice Framework to addressing Artisans' Training Issues in Nigerian construction sector - presented at Sheffield Hallam University, Faculty of Development and Society Conference held on 20th June 2011.

4.6.1.3 Pilot Study 3

Based on the information gathered from the pre-test survey (pilot study 1) and pilot study 2 stages; the data collection tools was designed and drawn-up to include necessary and relevant items.

The focus of pilot study 3 is to ensure that the data collection instrument features necessary details and information as informed by the earlier pilot surveys, and identify any omission and inappropriateness with the questionnaire. The pilot study stage was also conceived to safeguard against the possibility of the main survey being defective or ineffective, and to ensure that the analysis of data to be collected would be less problematic.

The assistance of three key groups of people was obtained for the purpose of this phase of the pilot study. The first group consists of three PhD research colleagues who have completed their data collection and analysis, the second consist of two researchers who has successfully completed their Doctorate degrees and have relevant experiences in skills related issues in the Nigerian construction industry. The third group was academicians consisting of two university professors and one associate lecturer who is statistics biased and vast in the use of SPSS software for data analysis.

As opined by Naoum (2011), the important elements sought from the feedback of this phase of piloting include:

- to identify ambiguous or unclear questions;
- assess the clarity and adequacy of the instructions
- determine the length of time it took to complete the questionnaire;
- note any objections to answering any of the questions;
- identify if there are oversights or omission of any major topic;
- assess the appropriateness of the layout of the questions and
- note other relevant comments.

Feedback from this phase of the pilot study were examined and given necessary consideration. Relevant observations made include the need to consider re-phrasing few questions, and delete some questions which were not too relevant to the achievement of the research objectives; with the view to reducing the number of questions and the time for completing the questionnaire.

The observations made were carefully considered for refining and updating the final edition of the questionnaire used for data collection for the main (stakeholders' survey) study discussed in the next section.

4.7 Stakeholders' Survey (Main Survey)

The main goal of this stage of the study is to explore the key stakeholders' views regarding the training and education of construction site operatives with focus on the set objectives of the research. Elicitation of the stakeholders opinions of the subject matter was based on the findings from the earlier surveys discussed above. The responses or submissions of the stakeholders provided necessary data for the successful achievement of the subsequent stages indicated in the Research Process Flowchart depicted in Figure 4.5. Data collection procedures and other stages of the research process are discussed under appropriate headings and chapters of this report.

4.8 Experts validation survey

The stakeholders' survey provided necessary data for the formulation of the skills training and development framework (see chapter 8), and the framework was subjected to verification by experts in the Nigerian construction industry. The feedback from the verifiers and other issues bordering on the framework validation survey is fully discussed in the validation section of chapter 8 of the report.

The data emanating from the various surveys conducted in the course of the research culminated in the study conclusions and recommendations presented in chapter 9 of the report.

4.9 The Research Process

Griffith and Watson (2008) further argued that a researcher has to be concerned with the efficient and effective use of their available resources in the attainment of the aims and objectives within a specific plan. This plan may take the form of a research methodology, the plan being the method that needs to be deployed in order to achieve the pre-determined aims and objectives of the study. The primary focus of research design, therefore, is to help avert a situation in which the research outcome does not address the initial study objectives or questions. The research design or process for this research project is illustrated in Figure 4.5 and features the following major components:

- Literature Review;
- Conceptualization of theoretical framework;
- Research Design and Methods;
- Data processing and analyses
- Development of CCSTD framework; and
- Validation of the CCSTD framework.

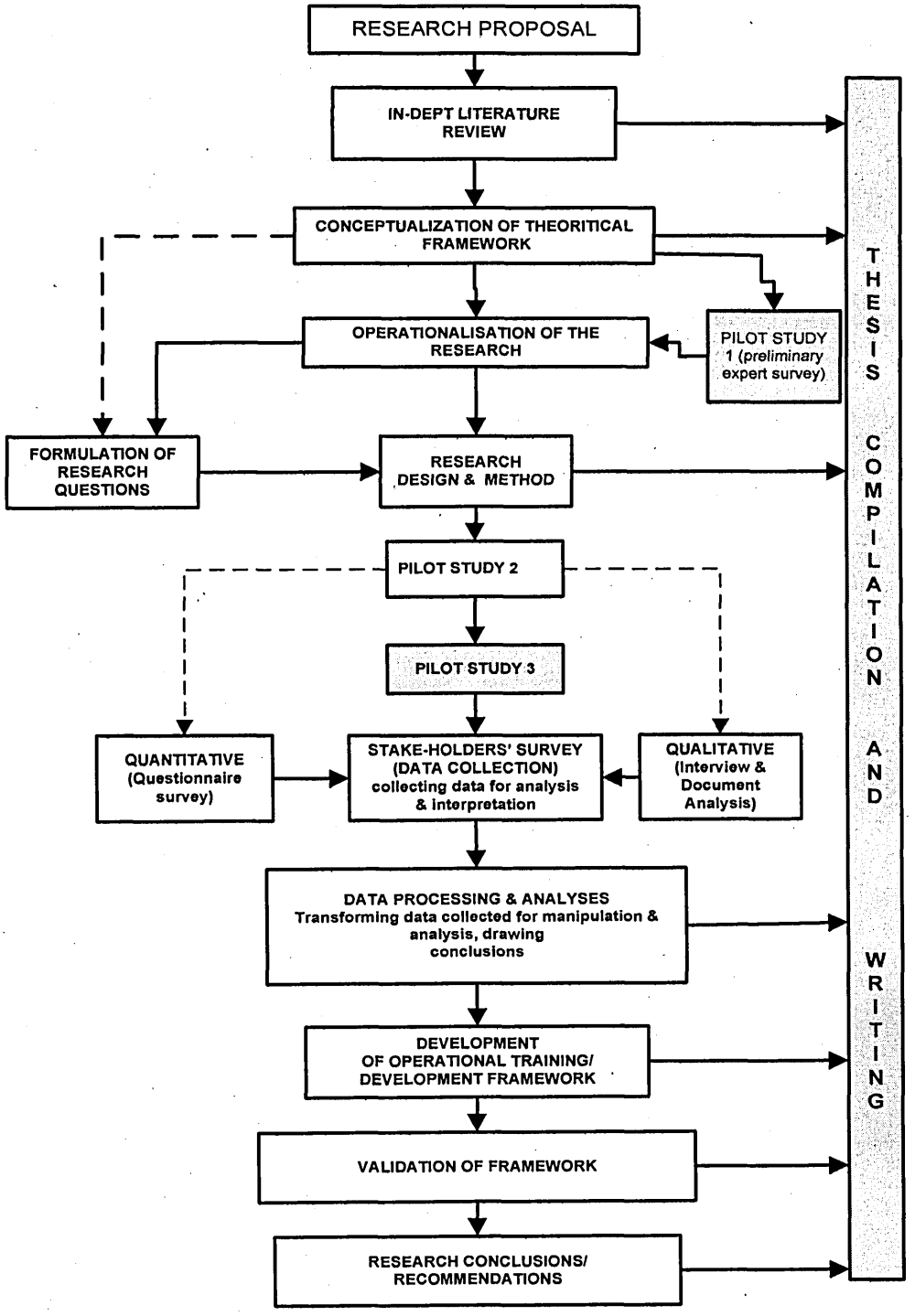

Figure 4.5: Research Process Flowchart.

4.9.1 Literature review

The literature search and its analysis provided the secondary data. An in-depth review of relevant literature was conducted based on the set aims, objectives and questions of the study. The literature review were reflected and presented in chapters one through three of the Thesis.

4.9.2 Conceptualization of theoretical framework

The research's theoretical framework was conceived by primarily identifying and specifying the exact phenomenon for investigation. The procedure (operation) involved critical analysis of findings from the literature search and pilot study 1. This operation led to the precise determination of the research problem and subsequent formulation of the research questions.

4.9.3 Research Design and Methods

This phase involved the identification of appropriate methods and methodologies to be adopted for the research. The preferred choice was pivotal to the accomplishment of the study objectives and thus was premised on the phenomenon being investigated and guided by the research questions. The choice of the research strategies was also piloted as reflected in section 4.6.1. The questionnaire survey, interview enquiry and document analysis methods were adjudged appropriate while the combination of the qualitative and quantitative research strategies adopted for the study;

1. Questionnaire Survey

Self administered questionnaires were used in eliciting data from a representative sample of the population. Relevant issues bordering on study population and sampling are discussed in section 4.11 of the thesis. Chapter 5 also presents further details on the quantitative data collection and analysis.

2. Interview Enquiry

Qualitative interviews were conducted with selected stakeholders relevant to the study phenomenon. Issues on population and selected sample are also presented in section 4.11. Further details on the data collection and analysis for the qualitative interview are presented in chapter 6.

3. Document Analysis

Examination and analysis of available documents related to the subject of VET in Nigeria were conducted. The criteria for selection of the documents and the details of the analysis as an aspect of qualitative data gathering phase were presented under appropriate sections in chapter 6 of the thesis.

4.9.4 Data processing and analyses

The data elicited through the combination of qualitative and quantitative approaches were transformed, manipulated and analyzed using appropriate data processing tools as discussed under appropriate sections of this chapter. The data analyses are presented in Chapters 5 and 6; and discussion of findings in Chapter 7 of the thesis.

4.9.5 Development of CCSTD framework

The successful outcomes of the earlier phases of the research process culminated in the development of the CCSTD framework. The formulation of the framework satisfied the aims, objectives and the ultimate goal of the study. Further details with respect to the framework development are elaborated in chapter 8.

4.9.6 Validation of the CCSTD framework.

The final major component or phase in the research process is the validation of the CCSTD framework. The verification of the framework was conducted using experienced professionals in the Nigerian construction industry. Information on the

validation process and the validation report are presented under appropriate section of chapter 8.

Chapter 9 of the thesis presents the study conclusions and recommendations.

4.10 Study population and criteria for selection

Neuman (2006) argued that the term population is an abstract because one can never truly freeze a population to measure it, the researcher must decide exactly who to count. According to him, because a population is an abstract concept, except for small specialized populations such as all the students in a particular classroom; a researcher needs to estimate the population. The research population refers to all the members of the group that the researcher is targeting for the purpose of data collection. The population is generally a collection of individuals or objects that forms the main focus of the scientific enquiry. It is also defined as a well defined collection of individuals, units or objects with similar characteristics. There are two main population types in any research: the target population which refers to the entire unit, group of individuals or objects the researcher is interested in generalizing the research conclusion; and the accessible population, which is a subset of the target population. It is also known as the study population or a representative sample for the study (Trochim, 2006; Neuman, 2006; Bryman, 2008; Castillo, 2009). The sample population for this research project was drawn from the various strata of the stakeholders which include:

1. ***Construction Industry Professionals such as Builders, Quantity Surveyors, Architects, Civil/Structural Engineers, Estate Surveyors*** - to elicit opinions on the general state of vocational training and gather suggestions on how the industry sector could be made to actively participate in the training of skilled operatives for the Nigerian construction industry. Also to solicit suggestions on delivery strategies for the training of the selected Trades groups, and elicit opinions on issues related to planning, implementation, assessment,

benchmarking, certification and administration of craftsmen's training and development for the selected trade groups.

2. ***Training Planners, Administrators and Trainers of Vocational Training Centers*** - to familiarize with relevant challenges bordering on planning, policies, visions, assessment, benchmarking, certification and administration of vocational training and development for the selected trade groups.
3. ***Professionals involved with craftsmen training and development*** - to determine the current situation with training; such as what are the prevalent training techniques or methods, the effectiveness or otherwise of these methods in providing competent site operatives for the construction industry.
4. ***Selected unskilled youth*** - to unravel reasons why youth no longer shows interest in skills acquisition and elicit opinions on how youth could be motivated for skill acquisition.
5. ***Students and Trainees of Technical and Vocational Training Institutes*** - to identify problems militating against skills training and learning from trainees' viewpoints; and solicit opinions for possible solutions to the current challenges.
6. ***Craftsmen currently practicing on construction sites*** - to reveal the most common and effective ways by which vocational skills are currently being imparted in the Nigerian construction industry.

The main reason the sample population for the study was drawn from the above listed categories of stakeholders is because they are one way or the other concerned with the crux or goals of the research, and would be able to provide relevant information that could aid the achievement of the research objectives and answer the questions of the study.

4.11 Sampling

Quantitative and qualitative researchers approach sampling differently, however, all research involves some kind of sampling. This is because no study, neither nor combination of the two approaches can include everything; every unit or individual

in the target population. The primary goal therefore, is to get a representative sample or a small collection of units from a much larger collection or population, such that the researcher can study the smaller group and produce accurate generalizations about the larger group (Neuman, 2006; Punch, 2005). Bryman (2008) defines sample as the segment or a subset of the population that is selected for investigation, and a sampling frame as the listing of all units in the population from which the sample is selected. He views representative sample as that which reflects the population accurately so that it is a microcosm of the population. Punch (2005) opines that sampling in quantitative research usually means 'people sampling', and the key concepts are therefore the 'population' which is the total target group who would, in the ideal world, be the subject of the research and about whom the researcher is trying to know or say something; and the 'sample' which is the actual group included in the study, and from whom data are collected. Researchers focus on the specific techniques that will yield highly representative samples that are very much like the population (Neuman, 2006).

The logic of quantitative sampling is that the researcher analyzes data collected from the samples; but wishes in the end to make statements about the whole target population from which the sample is drawn (Punch, 2005). Figure 4.6 illustrates the logic.

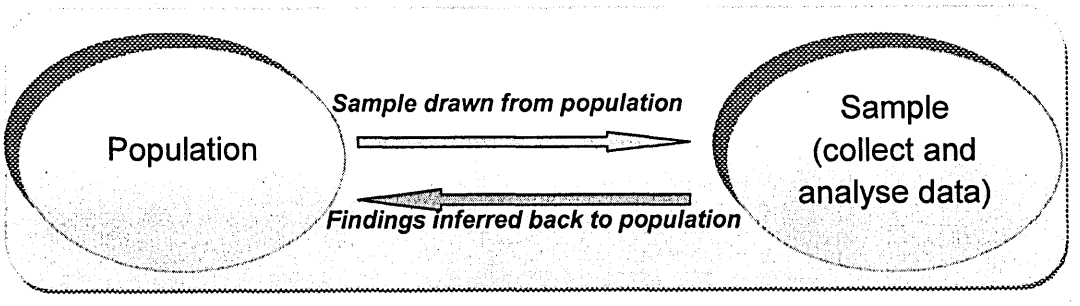

Figure 4.6- Populations and samples logic (adapted from Punch 2005).

As shown in Figure 4.6, data are collected from the sample and analysed to produce the study findings; and the findings are generalized from the sample to the population.

4.11.1 Quantitative Survey sampling approach adopted for the study

Considering the large size of the total target population to which the research findings is to be generalized (see section 4.10), a sample size of 500 was used for the study. The sample size determination was guided by the National Education Association's (probability sampling) representative sample size determination formula (Krejcie and Morgan, 1970):

$$s = X^2NP(1-P) \div d^2(N-1) + X^2P(1-P).$$

Where :- s = required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size

P = the population proportion

d = the degree of accuracy expressed as a proportion (.05)

Table for representative sample size determination prepared based on the formula by Krejcie and Morgan (1970) and Bartlett, Kotrlik & Higgins (2001) informed the discretional choice of 500 participants as the sample size for the questionnaire survey. The graph of sample size versus total population upon which the formula and table was based is shown as Appendix 'C'.

4.11.2 Qualitative Enquiry sampling approach adopted for the study

The purposive or judgemental sampling technique: A non-random sample in which the researcher uses a wide range of methods to locate all possible cases of a highly specific and resourceful representative population sample was adopted for the qualitative enquiry. Details about the sampling criteria and profiles of the participants are presented under sections 6.2 and 6.3 in Chapter 6 of the thesis.

4.12 Methods of Data Collection

Data are the empirical evidence or information that a researcher gathers carefully according to rules or procedures (Neuman, 2006). Researchers gather data using specialized techniques; such data can be in the form of numbers (quantitative) or expressed as words, pictures, or objects (qualitative). As earlier discussed in this chapter, the approach adopted for this study is the combination of quantitative and qualitative techniques. The actual methods adopted for data collection for this research include the questionnaire survey for quantitative; interview enquiry and document analysis for qualitative data. The data collection methods for the study are explained in this section.

4.12.1 Quantitative Data collection Method

As earlier indicated, survey research approach was adopted for the study. Survey research involves eliciting information about the opinions, characteristics, attitudes or experiences of one or more groups of people by asking questions and tabulating their responses (Leedy & Ormrod, 2005). The approach basically consists of collecting information by asking a set of pre-formulated questions in a pre-determined sequence through administering of structured questionnaire to a representative sample of a target population. The ultimate objective is to generalize the findings to a larger population by conducting survey on a sample of the particular population. The major characteristic features of a survey research as opined by Blaxter, *et al.,* (2003) and Bryman (2008) include:

- questions are designed to be unbiased;
- large surveys can be broken into smaller segments;
- surveys lend themselves to future replication;
- the research is conducted with a representative sample of respondents;
- questions are designed in such a way that answers from individual respondents combine to produce result which can be generalized to the whole population.

Survey research however has the major weakness of focusing on breath rather than depth for its validity.

The three identified methods for eliciting data in survey research are: the self completion questionnaires, the internet questionnaires (distributed through e-mail or web-based survey method or on-line through Survey-Monkey etc); and the postal mail questionnaires (Leedy & Ormrod, 2005; Bryman, 2008).

Survey questionnaire design is usually guided by the research questions. The questionnaire must be capable of translating the study objectives into clear and specific questions; responses to such questions provide the needed data for answering the questions of the study or testing the hypothesis (Punch, 2005; Naoum, 2011).

A five point Likert's scaled self-completion questionnaire (see Appendix 'A') was used for quantitative data collection for the study. The questionnaire was structured to be partly closed ended (with variables for respondents to choose from), and partly open ended (to allow respondents to provide additional information, expatiate or clarify issues on the options chosen from the closed-ended portion). The collective views of research methodology authors; namely: Punch (2005); Leedy & Ormrod (2005); Neuman (2006); Bryman (2008); and Naoum (2011) on survey questionnaire design and construction guided the development and administration of the quantitative data collection instrument. Further details on the quantitative data collection are provided under the relevant sections of Chapter 5.

4.12.2 Qualitative Data Collection Method

The method adopted for qualitative data collection for the research includes interview enquiry and document analysis. The interview technique is a major approach for collecting factual information as well as opinions (Naoum, 2011). Similarly, Punch (2005) opines that interview is one of the main data collection tools in qualitative research which is a very good way of accessing people's perception, meanings, definitions of situations and constructions of reality. It is a face-to-face interpersonal role situation in which an interviewer asks respondents questions designed to elicit

answers pertinent to the research hypothesis or questions. The questions, their wording and sequence define the interview structure (Nachmias and Nachmias, 1996).

Naoum (2011) listed the circumstances under which the interview technique is suitable to include:

- when interpersonal contact is essential to explain and describe the questions;
- when the research requires an explanation as why the respondents are answering or feeling the way they do, i.e. requires more that a Yes or No, or Agree or Disagree answer;
- when the people being interviewed are homogenous and share the same characteristics;
- when the researcher know enough about the interviewee so he or she only ask what is important and knows how to ask it; and
- when a case study needs to be investigated in detail, such as asking questions such as how and why things had happened the way they did.

Interviews are either conducted face-to-face or through telephone and may adopt any of the models of structured, semi-structured or un-structured (Punch, 2005; Neuman, 2006; Bryman, 2008; and Naoum, 2011). The telephone interview approach and the semi-structured mode were adopted for the interview survey. The interview guide is shown as Appendix 'B'.

The semi-structured interview is more formal than the unstructured interview in that there are a number of specific topics around which to build the interview. The form of interview uses 'open' and 'closed-ended' questioning but the questions are not asked in a specific order or schedule (Naoum, 2011). It typically refers to a context in which the interviewer has a series of questions that are in the general form of an interview schedule but is able to vary the sequence of questions. The questions are frequently somewhat more general in their frame of reference from that typically found in a structured interview schedule. Also the interviewer usually has some latitude to ask further questions in response to what are seen as significant replies (Bryman, 2008).

Neuman (2006) agrees that the telephone interview is a flexible method with most of the strengths of face-to-face interviews but for about half the cost. Interviewers control the sequence of questions and can use some probes. A specific respondent is chosen and is likely to answer all the questions alone. The researcher knows when the questions were answered and can use contingency questions effectively.

The foregoing advantages formed part of the reasons why the telephone interview approach was adopted for the study, coupled with the fact that the researcher had to conduct the interview with respondents who are based in Nigeria. The principles for interview survey preparation, management and recording as indicated by Punch (2005); Neuman (2006); Bryman (2008); and Nauom (2011) served as a guide during the interview process. Further details on the interview enquiry are provided in Chapter 6 of the report.

4.13 Methods of Data Analysis

Data analysis involves the organization and manipulation of the data to get them to reveal things of interest about the phenomenon of study to the researcher. The full details of the procedures followed in the collection and analyses of data for this research are presented in Chapters 5 and 6 of the Thesis.

4.13.1 Quantitative Data Analysis

The quantitative data elicited through the questionnaire survey were organized and manipulated using Statistical Package for the Social Sciences SPSS (PASW-18) software. The software helped to present the data in relevant formats so that they could provide useful and relevant clues towards answering the questions of the study. The emerging results were interpreted accordingly and served as pedestal for the CCSTD framework development. Further details on the quantitative data analysis and discussion of findings are presented in Chapters 5 and 7 respectively.

4.13.2 Qualitative Data Analysis

The recorded qualitative interviews were diligently transcribed, and the data in the form of texts, written words, and phrases, describing or representing the respondents' opinions and experiences with regards to craft skills training and development issues in the Nigerian construction industry were analyzed. The qualitative data garnered from the open-ended portions of the questionnaires also formed part of the qualitative data. A systematic, logical, and rigorous analytic approach was used to give meaning and sense to the data without loosing the context. A Computer Aided Qualitative Data Analysis Software (CAQDAS) NVivo 8 assisted the efforts of generating themes for in-depth discussions during the process of the analysis. Further details on the qualitative data analysis, interpretation and discussion of findings are presented in chapter 6 and 7 respectively.

4.14 Validity and Reliability Assurance of the Study

This section is focused on demonstration and explanation of measures adopted in ensuring validity and reliability of the study.

4.14.1 Validity

Punch (2005) views validity as the term used to describe how the research instrument measures what it is intended to measure and the extent to which the instrument measures what is claimed to measure. He further submits that an indicator is valid to the extent that it empirically represents the concept it purports to measure. Due to the latent nature of the variables to be studied, an inference is involved between the items people respond to and the construct the researcher aims at measuring. Validity is about the inference and applies to the inference made from what is observed. In order to ensure that the inference, proposition and conclusions are valid, errors that could affect validity need to be avoided in research design as much as possible. Errors such as defective sampling techniques and sample selection, coding defects, unprofessional administration of data collection tools, misrepresentation and misinterpretation of investigative questions by respondents and other inappropriate methodologies in data analysis were avoided as much as possible during the study.

4.14.2 Reliability

Reliability is the ability of an instrument to produce consistent results whenever it is repeated even by another researcher (Sarantakos, 2001). Reliability issues were given consideration in the research through the identification of types of consistencies.

- **Internal consistency:** this concerns ensuring that each proposition, inference and conclusion of themes is consistent with each other and work in the same direction;
- **Consistency over time:** this is related to the stability of measurement over time, so that the same instrument, if given to the same respondents under the same circumstances at different time; will produce the same result.

4.14.3 Validity and Reliability Assurance

In order to ensure that the study is valid and reliable, the following were given due consideration during the research process:

- **Population:** a large population size was selected for the study;
- **Participants:** experienced professionals and relevant stakeholders participated in the study;
- **Variables:** research questions and attributed variables were clearly defined;
- **Instrument:** research instruments were carefully designed by adequately conducting appropriate pilot and pre-test studies;
- **Triangulation:** multiple research techniques were adopted for the purpose of data collection so as to ensure that the defects in one were adjusted for by the other;
- **Electronics recording of interview:** electronic voice recording machine was used to record data from the telephone interview and Computer Assisted

Qualitative Data Analysis Software (CAQDAS) used to facilitate coding during data analysis;

- **Validation of emerging framework:** the ensuing 'Construction Crafts Skills Training and development (CCSTD) Framework' was subjected to necessary scrutiny by professionals and comments, observations and suggestions incorporated as much as possible in the final editing of the CCSTD framework.

4.15 Research Conceptual model and theoretical framework

In consonance with the research objectives, questions of the study and the review of literature; the theoretical framework that gives a direction to the eventual development of a 'functional skills training and development framework' was developed. Punch (2005) describes a conceptual framework as a representation, either graphically or in narrative form, of the main concepts or variables, and their presumed relationship with each other; which is usually best shown as a diagram. He opines that some sort of conceptual framework is often implicit as the question development stage proceeds and maintained that it helps in the development of research questions. The development of the research questions and the conceptual framework goes hand in hand, the direction of thinking may be from the conceptual framework to the research questions, or vice versa, or they may interact with each other in some reciprocal way. Punch opines that whether or not it is appropriate to have a predetermined conceptual framework depends on how much prior knowledge and theorizing are brought to the research, and in developing a conceptual framework, like the research questions; there is often considerable prior knowledge, and theorizing. He listed some of the advantages to include:

- bringing clarity and focus, helping in seeing and organizing the research questions more clearly;
- helping to make explicit what is already known and thought about the subject area and topic
- helping considerably in communicating ideas about the research, thus simplifying the preparation of the research planning more articulately.

- encouraging selection, and assisting in focusing and delimiting thinking of the researcher during the planning stage.

The concepts are presented in Figures 4.7 and 4.8.

4.15.1 Research conceptual model

The conceptual model shown in figure 4.7 focuses on the perceived input, outcome and benefits of the whole research concept. The concept is explained below:

Input: Unskilled youth population are targeted for recruitment, training and skills development, this will provide competent skilled operatives for the construction industry, reduce unemployment, and produce qualified skill trainers who would train other youth.

Outcome: The consequential outcomes include a constant and regular supply of skilled operatives, improved work output, effective management of project time and cost control. Thus ensuring that building projects are completed within the scheduled time, to the required quality, and within budgeted costs.

Beneficiaries: The positive effects of the above include clients having value for investment in projects, improved output in terms of work quality, project timing and profit for the construction industry. The community at large benefits in that youth restiveness, crime rates, unemployment and poverty are reduced; and the nation's economy becomes better for it.

4.15.2 Research conceptual theoretical framework

A conceptual framework shows the conceptual status of the factors, variables or phenomena the researcher is working with; usually in a pictorial or diagram form. Developing the research questions often involves developing a conceptual framework for the research as well. The conceptual framework brings into focus

the (implicit) concept the researcher is using in his or her thinking about the study phenomenon. The theoretical framework for this research was developed through conceptualization and critical analysis of findings drawn from the literature review, and premised on the identified research problem and questions. The conceptual theoretical framework presented in Figure 4.8, depicts the process and parties involved with planning, funding, staffing, mobilization, implementation, evaluation and certification of vocational skills training.

The idea behind the theoretical framework is that the component of a functional training framework for construction related crafts in Nigeria must take into cognizance issues related to proper planning, adequate funding with appropriate considerations for strategies to be adopted for the mobilization of the teaming youth population and other potential candidates for training. Considerations also will need to be given to the approach to implementation of crafts skills training within the context of the construction industry setting in the nation.

In order to build confidence in the products of the training schemes the issue of standard, testing, certification and qualification will also have to be given adequate attention. Detailed considerations have to be given to the expected input of the various stakeholders or parties, and when each of the parties perform their expected functions in the scheme of things, a framework for effective and sustainable crafts skills training and development will emerge.

The field work for the research focused on eliciting the stakeholders' opinions on the roles each of the identified group would be expected to play in the proposed framework for the training and development of construction related tradesmen in Nigerian construction sector.

4.15.3 Underlying Principle for the conceptual framework

A critical examination of the present approach for artisans' training in Nigeria reveals the need for a pro-active and holistic approach to the proposal of a workable framework for the training of construction related tradesmen. Areas that require attention as shown in the conceptual framework depicted in (figure 4.8) include:

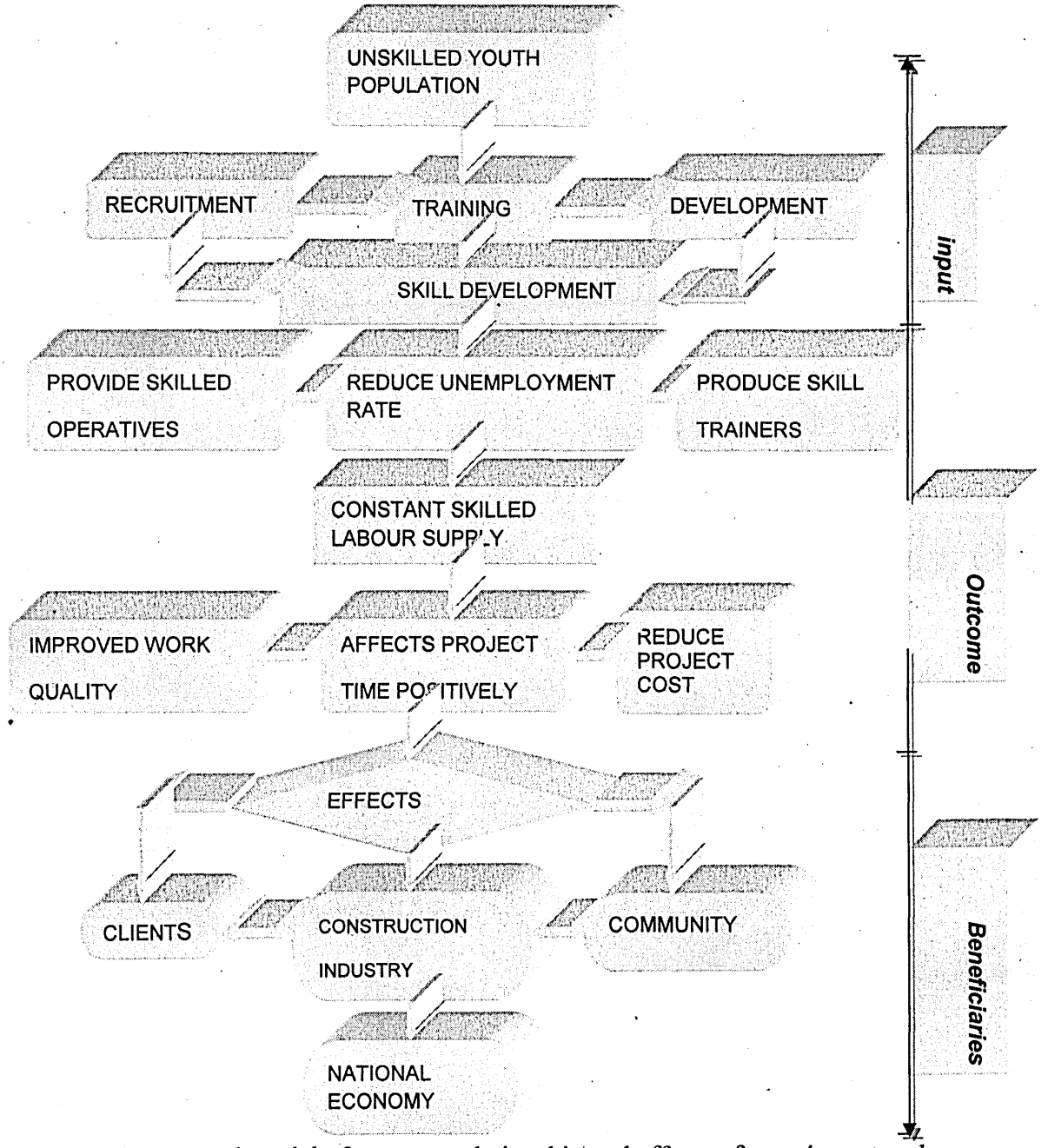

Figure 4.7 - Conceptual model of process, relationship and effects of recruitment and training of construction site operatives

- Developing an appropriate strategies for effective planning, coordination and monitoring of craft skills training and development;
- Mobilization of the youth, provision of adequate infrastructures, design of comprehensive curriculum and qualifications;

- Delivery of the actual training, benchmarking and maintaining quality assurance;
- Assessing and determining the involvement of the various bodies or stakeholders in the formulation of policies, funding, staffing, mobilization, training implementation, testing, certification of trainees and evaluation of the scheme;
- designing of appropriate qualification framework for the training scheme.

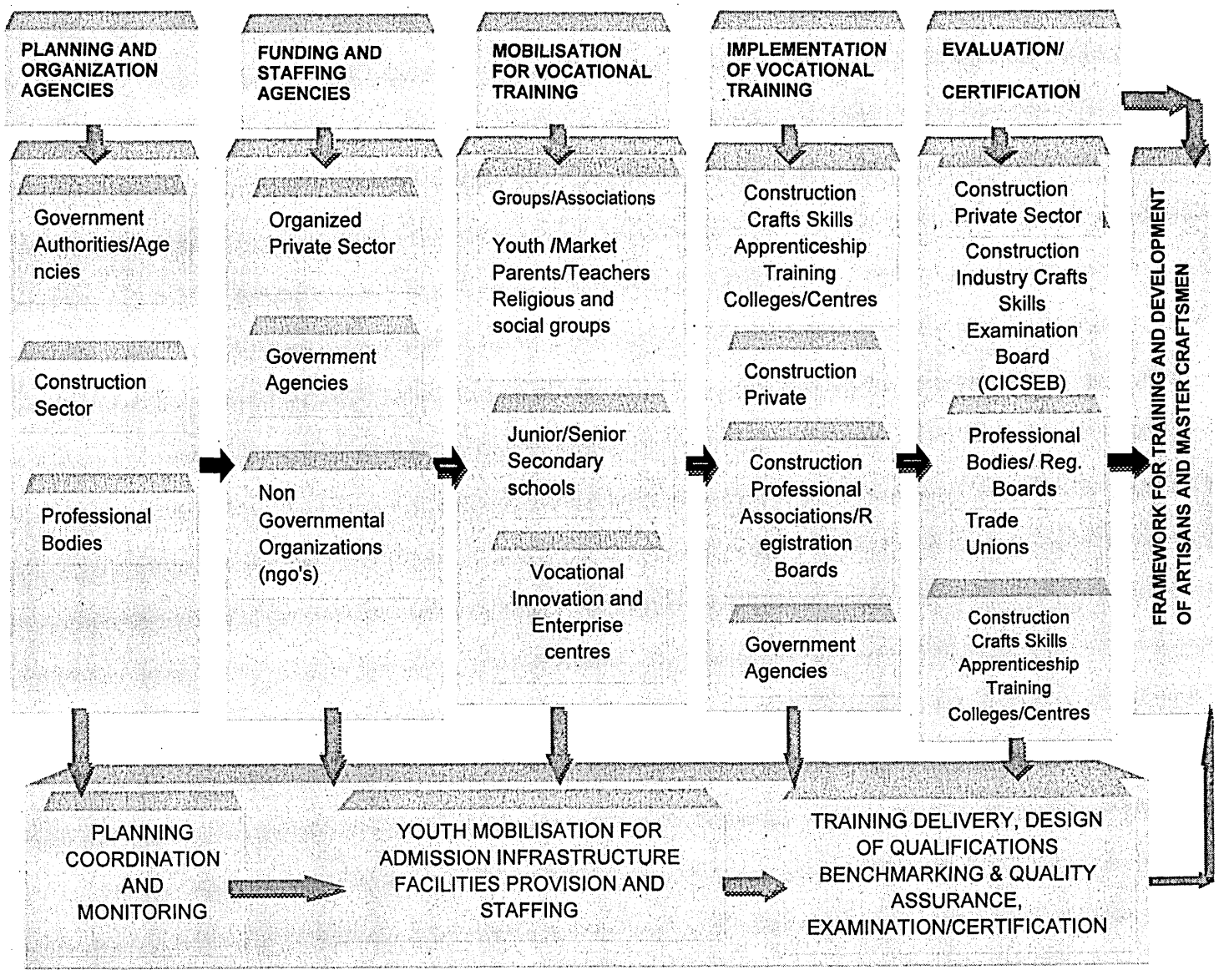

Figure 4.8 - Construction Crafts Skills Training theoretical Framework (Parties and Processes involved with CST).

4.16 Chapter Summary

The chapter expatiated on the research design and methodological approach adopted for this research project. The chapter commenced with an introduction and discussion of the components of the research process. Insights into the two major philosophical research paradigms were given. Explanations were provided on the characteristic features of the two paradigms. The epistemological orientation of 'positivism' (Quantitative) with its ontological orientation of 'objectivism', and the epistemological orientation of 'interpretivism' (Qualitatitve) paradigm with its ontological stance of 'constructionism' have deductive and inductive orientation respectively towards theories in research. The three main research approaches; quantitative, qualitative and the mixed-method approaches were also discussed in detail. Illustration of the process of application of the mixed method approach in the study was given and the justification for the adoption of the approach provided.

The chapter also discussed the various characteristics features of both the quantitative and qualitative design approaches and explained the reasons for the choice of descriptive approach (survey research) for quantitative and interview and document analysis for the qualitative enquiries.

The procedures for drawing representative samples from the study population in each case, along with the methods adopted for data collection and analyses; which culminated in the achievement of the research objectives and ultimate goal of formulating and validating the CCSTD framework were also explained.

The chapter discussed the achievement of validity and reliability assurance in the study and closes with the elaboration of the research conceptual theoretical framework and its underlying principles.

Further, the chapter presented the research model and research process flowchart, and expatiated on how the various components were accomplished in the course of the study. The details of the pilot studies, quantitative and qualitative enquiries were provided.

Details on the quantitative and qualitative data collection and analyses are elaborated in Chapters 5 and 6 of the thesis respectively.

5.0: Quantitative Data Analysis

5.1 Introduction to the Chapter

This chapter presents the analysis of the questionnaire survey. The goal of the survey was to ascertain the relevance of the various propositions bordering on skills training and development in the Nigerian construction sector. The survey aims at identifying the problems confronting construction related vocational skills training and development. The focus of the survey's variables include: examining the past and current methods of Vocational skills training (VST) for Craftsmen in Nigeria, determining the problems militating against Vocational Education and Training (VET), investigating reason(s) why the younger generation in Nigeria seems not showing interest in Construction related Vocational Skills acquisition. The survey also aimed at exploring the strategies for motivating and mobilizing the youth generation for construction related crafts skills acquisition and establishing the effective methods for organizing and administering construction industry skills training and development in the Nigerian construction sector with the ultimate goal of developing a functional framework for the training and development of construction related trades in sector. The chapter commences with the discussion of the method of data collection, the relevant details of responses to the survey are highlighted. The methods employed in the data analysis are explained with the analysis presented under the various headings structured around the research aim and objectives. The chapter concludes with a summary of the chapter.

5.2 Quantitative Data Collection Approach

The goal of the data collection for the study was to elicit information from the various groups that are of interest to the ultimate aim of the research; which is the formulation of a training framework for achieving effectiveness in the training and development of craftsmen for construction related skills in the Nigerian construction sector. In order to capture relevant data which will fully address the various set objectives of the research as listed in the introduction chapter, data were sought from practicing Professionals drawn across the Nigerian construction industry's allied professions,

Professionals involved with Vocational Education and Training (VET), students and trainees of Technical and Vocational Training Institutes; unskilled youth (to unravel reasons why youth no longer shows interest in skill acquisition), and Craftsmen currently practicing on construction sites. The quantitative data collection tool was designed to capture the views of the respondents on issues bordering on the effectiveness and problems of past and present skills training strategies in Nigeria, the effects of the training problems on the quality of craftsmen, reasons the youth seems not to be showing interest in construction related skills and strategies or methods that could be adopted in getting them motivated and recruited for skills training and other relevant issues on the ideal and effective approaches to skills training and development for craftsmen in the Nigerian construction sector.

For the purpose of exploring respondents' perception with regards to a wide range of relevant issues on the research focus; a semi structured, self completion Likert scale questionnaire designed around opinion statements, with propositions based on relevant issues emanating from literature and the preliminary (pilot) survey. Bryman (2008) describes the Likert scale as essentially a multiple-indicator or multiple-item measure of a set of attitudes relating to a particular area and with the goal of measuring intensity of feelings about the area in question. It comprises a series of statements or items focusing on certain issues or themes to which the respondents were asked to indicate level of agreement to the various propositions. The scales 1 - 5 was used for all the variables in the questionnaire with responses classed into three; namely: Agreement scale, severity scale and seriousness scale (see Table 5.1).

500 questionnaires were administered among the various groups targeted for the study; the copy of the questionnaire is shown on Appendix 'A'.

Table 5.1: Likert Scales Classification

AGREEMENT SCALE	SEVERITY SCALE	SERIOUSNESS SCALE
1 = Strongly Disagreed (SD)	1 = Not Severe (NS)	1= No Effect (NE)
2 = Disagreed (D)	2 = Less Severe (LS)	2 = Less Serious (LS)
3 = Don't know (DK)	3 = Moderately Severe (MS)	3 = Moderately Serious (MS)
4 = Agreed (A)	4 = Somehow Severe (SS)	4 = Somehow Serious (SS)
5 = Strongly Agreed (SA)	5 = Very Severe (VS)	5 = Very Serious (VS)

5.3 Approach to Quantitative Data Analysis

The initial step in the analysis involved close observation, sorting and grouping of the data elicited. Few of the questionnaires returned were not included in the analysis due to omission of useful facts or non-completion of vital questions salient to the crux of the research; while necessary steps were taken to ascribe values during the data entry process to adjust for missing data in some. Subsequent to this was the preparation of a code book to reflect the coding of the data into numerical representations, thereby facilitating the entry of the information collected in to SPSS; so that statistical analyses could be performed using the Predictive Analysis Software (PASW Statistics) version 18.0. According to Pallant (2010) coding involves defining and labelling each of the variables and assigning numbers to each of the possible responses. The process assists with the compilation of a summary of the instructions to be used in converting the information gathered from each case or subject into a format that the SPSS can understand. Data entry process was carefully carried out and adequately double-checked to ensure that errors were avoided.

Details of questionnaires as distributed and analyzed are shown in Table 5.2.

Table 5.2: Detail of Questionnaire Distributed and Analyzed

	Total Distributed	**Total used for Analysis**
	500	282
% of Total	-	56.4

Figure 5.1 depicts the total number analyzed, 282 **(56.4%)** of the total questionnaires returned were adjudged as valid for analysis.

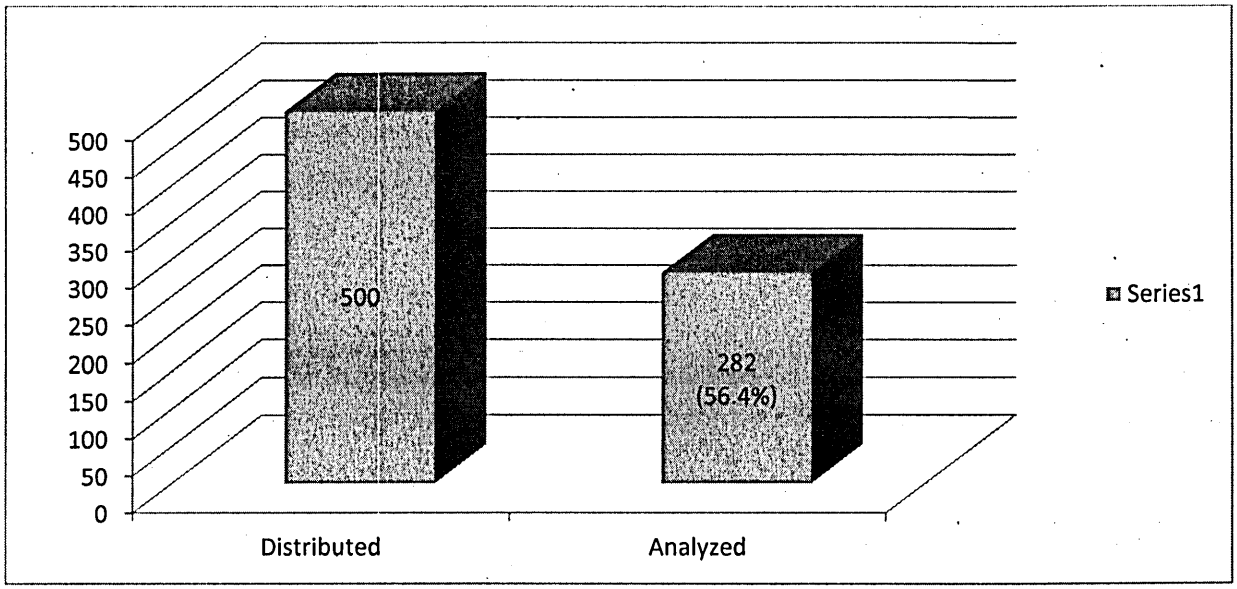

Figure 5.1: Chart of Questionnaire Distributed and Analyzed

5.4 Analysis of Respondents

A total of 282 'valid' questionnaires returned by the respondents were used for data analysis. Figure 5.2 shows a chart of valid questionnaires received from various categories of respondents. As indicated Professional Builders represent (34.8%) of the respondents for analysis, followed by Civil/Structural Engineers (16.3%) Others include Quantity Surveyors 10.3%; Architects 8.9%; Estate Surveyors 6.4%; Vocational/Technical Educators 5.7%; and others which include Urban and Regional Planners 1.8%. Students and Trainees majority of who are youths and representing the youth generation was 16.0%.

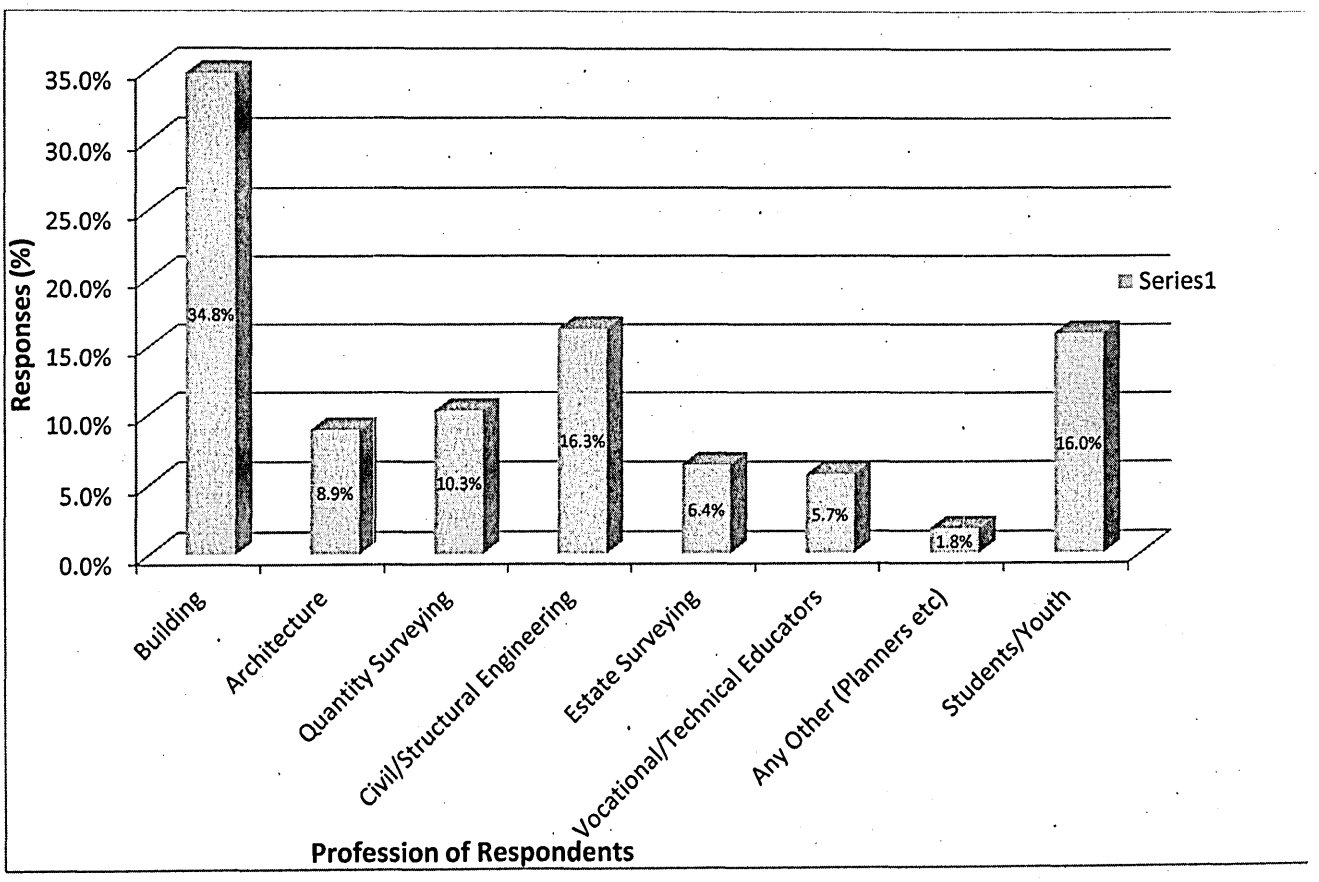

Figure 5.2: Analysis of Respondents Professional Affiliation (%)

Table 5.3 shows the cross-tabulation of the professional practice areas of the respondents to the survey. A total of 44.6% of the respondents are involved with project management and contracting, while 24.8% indicated that they are into consultancy. 17.1% are involved with education and training in vocational or higher institutions. Table 5.4 depicts the work experiences of the respondents in the construction industry. The range of years of experience indicates that a good percentage of the respondents have been in the Nigerian construction industry for over 10 years while appreciable proportion have worked in the industry for less than 10 years thus allowing for a balance of opinions on both past and most recent experiences on construction industry skills training in the country.

Table 5.3: Cross-tabulation of Respondents' Professional Affiliation and Practice Area

		Respondents' Practice Area						
		Consultancy	Contracting	Project Management	Training/ Education	Any Other	Total	%
Respondents' Professional Affiliation	Building	20	26	34	16	2	**98**	**34.8**
	Architecture	10	7	5	3	0	**25**	**8.9**
	Quantity Surveying	15	4	4	6	0	**29**	**10.3**
	Civil/Structural Engineering	15	12	13	5	1	**46**	**16.3**
	Estate Surveying	7	1	8	2	0	**18**	**6.4**
	Vocational/Technical Educators	0	2	0	14	0	**16**	**5.7**
	Any Other (Planners etc)	3	0	0	2	0	**5**	**1.8**
	Students/Youth	0	10	0	0	35	**45**	**16.0**
	Total	**70**	**62**	**64**	**48**	**38**	**282**	-
	%	**24.8**	**22.0**	**22.6**	**17.1**	**13.5**	-	**100**

Table 5.4: Cross-tabulation of Respondents' Working Experience and Professional Affiliation

Years (range)	(%) Years of Respondents' Work Experience							
	Building	Architecture	Quantity Surveying	Civil/Structural Engineering	Estate Surveying	Vocational/ Technical Educators	Any Other (Planners etc)	Students /Youth
1-5	28.6	40.0	31.0	32.6	38.9	18.8	20.0	44.4
6-10	20.4	20.0	24.1	26.1	22.1	12.5	60.0	22.2
11-15	21.5	8.0	24.1	23.9	16.7	12.5	0	0
16-20	17.3	16.0	10.4	13.1	16.7	25.0	0	0
>20	12.2	16.0	10.4	4.3	5.6	31.2	20.0	0
NIL	0	0	0	0	0	0	0	33.4

5.5 Selected Statistics Tests for Analysis

5.5.1 Introduction

The choice of the appropriate statistics is crucial to adequate reporting of the research findings and in addressing specific research questions. After due examination and consideration of the distribution of each of the variables, the researcher has the important task of looking for relationships among two or more of the variables. The choice of statistics for analysis often depends on the research design, characteristics of the variables, shape of the distributions, level of measurement, and whether the assumptions required for a particular statistical test are met (Pallant, 2010; Bryman, 2008).

5.5.2 Test of Reliability

Reliability refers to the consistency of a measure of a concept. The aspect of reliability that is of significant interest and selected for assessment in this research is internal consistency; this is the degree to which the items that make up the scale are all measuring the same underlying attribute (Bryman, 2008; Pallant, 2010). Considering the views of Hinton *et al.*, (2004); De Vaus (2007); Bryman (2008); and Pallant (2010); Cronbach's alpha which is adjudged as the most widely used test of internal reliability and most suitable for internal consistency was selected for testing the reliability of the scales in this analysis.

The Cronbach's alpha coefficient statistic provides an indication of the average correlation among all the items that make up the scale; it calculates the average of all possible split-half reliability coefficients (Bryman, 2008). A computed alpha coefficient will vary between 0 (indicating no internal reliability) and 1 (indicating perfect internal reliability). A high correlation between the different items will indicate they are measuring the same thing as there will be only small values for error, while a low correlation will indicate that there is a lot of error and the items are not reliably measuring the same thing (Hinton *et al.*, 2004, Bryman, 2008). The calculation of Cronbach's Alpha depends on the number of items in the test and the number of participants. Alpha value of between 0.7 and 0.8 is recommended as adequate for a questionnaire or a measure to be reliable (Bryman, 2008;

and Pallant, 2010). The computed Alpha values are however sensitive to and dependent on the number of items in the scale; it is common to have lower values especially when the items in the scale are fewer than ten. Hinton *et al.*, (2004) submits that an Alpha score above 0.75 is generally taken to indicate a scale of high reliability, 0.5 to 0.75 is generally accepted as indicating a moderately reliable scale while a figure below this generally indicates a scale of low reliability. Berthoud and Gershuny (2000) opines that an alpha coefficient of a minimum value of 0.6 as good and acceptable, while Pallant (2010) suggests that in a situation where the Alpha coefficient is less than a minimum level of 0.7; it may be better to calculate and report the mean inter-item correlation for the items. The most acceptable mean inter-item correlation values range from 0.2 to 0.4.

5.5.3 Measures of central tendency

Measure of central tendency reveal values typical for a distribution of values and the trends of responses across the various variables in the data, this statistics is considered relevant in this research because it shows the averages for the distribution of scores in the data-set; thus providing clues to the weightings for the various variables under each of the propositions in the survey tool. Two of the recognized averages in quantitative data analysis selected for the purpose of this report are the Arithmetic mean and the Median.

5.5.3.1 Mean

Analysis of the mean was employed to show the trends with regards to the responses to the variables and aimed at identifying the strength of responses in order to identify the relevance of each of the variables in providing answer to the research questions. The mean is a particularly informative measure of central tendency of the variable if it is reported along with its confidence intervals. The confidence intervals for the mean give a range of values around the mean where the true population mean is located with a given level of certainty. The mean is commonly employed in relation to interval and ratio variables but also very relevant to ordinal variables (Bryman, 2008; Pallant, 2010; De Vaus, 2007).

5.5.3.2 Median

The median as the mid-point in a distribution of values is not vulnerable to outliers which will exert considerable upwards or downwards pressure on the mean. The median values (denoted by * to indicate items opined to be of high relevance under each proposition) is considered relevant because it helps in providing further inferences on the direction of the opinions expressed by the respondents on the variables. The median as a measure of central tendency is more suitable to ordinal variables and can also be employed in relation to interval and ratio variables (Bryman, 2008, Pallant, 2010).

5.5.3.3 Chi-square

Chi-square (x^2) test for independence facilitates the exploration of relationship between two categorical variables. The statistics allows the researcher to establish how confident he can be that there is a relationship between any two variables in the population. The test works by calculating for each cell in the table an expected value that would occur on the basis of chance (Hinton *et al.*, 2004; Bryman and Cramer, 2009; Pallant, 2010). The level of statistical significance (alpha level) is set at $p < 0.05$ signifying that the risk of rejecting the null hypothesis is 5%.

5.5.3.4 Cross-tabulation

Cross-tabulation is a combination of two or more frequency tables arranged such that cell in the resulting table represents a unique combination of specific values of cross-tabulated variables (Gravetter and Wallnau, 2004). It allows for the examination of frequencies of observations that belong to specific categories on more that one variable, thus allowing for exploration of the association between the variables or for examining whether there is evidence of an association. Cross-tabulation analysis is most often used to analyze categorical (nominal) measurement scale data and was chosen as one of the statistical analysis method to facilitate identification of relations between cross-tabulated variables (Hinton *et al.*, 2004; Bryman and Cramer, 2009). It helped to identify the percentages of the youth as compared to the adult population supporting various variables under relevant propositions. The method was very valuable in providing answers to the research questions on the reasons the youth generation in Nigeria is not indicating interest in training to acquire construction related skills, and how best their interest could be secured

and what strategies and avenues could be explored to adequately get them mobilized for skills training and acquisition. · Testing the association between the age group and the choice of variable helps in examining the null hypothesis: that there is no difference between the age groups in their choices of postulated solution to the skills training problem. When the null hypothesis is true we should see same patterns in the choice of variables.

5.5.3.5 Cramer's V Test

Cramer's V is at test that calculates the correlation in tables having more that two rows and columns. It is a post-test to determine strengths of association after chi-square has determined significance; whereas, chi-square proves the significance of relationship between variables, it does not indicate the strength of significance or its importance. Cramer's V as a post-test gives the additional information. The value of Cramer's V varies between 0 and 1, a value close to 0 shows little association between variables; close to 1; it indicates a strong association (Cramer, 1999; Bryman and Cramer, 2009).

5.6 Data Analysis and Findings

The analysis and findings from the data elicited from the respondents through the questionnaire survey are summarized under this section of the report.

5.6.1 Reliability Test of Measurement Scales

The questionnaire scales was analyzed for reliability using the Cronbach's Alpha statistical test for reliability. The summary of the reliability test is presented in Table 5.5 below. The result reveals that three (3) of the measuring scales - past training methods, present effective training methods and effects of factors affecting skills training on crafts quality with 0.692, 0.673 and 0.679 respectively has Cronbach's Alpha $<$ 0.70. Going by the views of Hinton *et al.*, (2004) and Berthoud and Gershuny (2000); Alpha score of $\geq$ 0.5 to 0.75 is within acceptable range for reliability. Hence we can confidently conclude that the scales under each of the propositions in the questionnaire are reliable for the purpose of the survey.

Table 5.5: Reliability Statistics Summary

Questionnaire Scale	Cronbach's Alpha	Cronbach's Alpha based on Standardized Items	N of Items in the Scale
Past training methods	0.692	0.677	9
Effective training methods	0.673	0.685	9
Factors affecting skills training	0.762	0.774	11
Effects of factors on skills quality	0.679	0.681	2
Effects of factors on craft Trades	0.891	0.896	14
Organized Private Sector Involvement in training	0.800	0.804	12
Reasons Youths are not interested in Skills acquisition	0.788	0.792	18
Strategies for mobilizing youths for skills acquisition	0.758	0.780	12
Avenues for recruiting youths for skills acquisition	0.833	0.832	11
Crafts training strategies to address skills shortages	0.723	0.739	8
Agencies for Crafts training quality standard/assurance	0.826	0.828	12
Agencies for Examination and certification	0.800	0.790	10

5.6.2 Analysis of Effective Methods for training construction skills in the past

The analyses of data on the objective of the research to examine the past and current methods of Vocational education/Training that proved effective for the training of crafts skills for the Nigerian construction sector are shown in Tables 5.6 and 5.7.

From the result shown in Table 5.6 majority of the respondents (38.7% strongly agreed and 49.3% agreed with scores of **4.3233** and 4* for the mean and median respectively; V=.20) supported that the *Technical Colleges of old was a good and effective avenue* for construction crafts training. Responses also showed that *the informal (local) apprenticeship training method* (35.5% strongly agreed and 40.4% agreed with mean and median scores of **4.0687** and 4* respectively; V=.19) and the then *Trade Centres* (32.6% Strongly Agreed and 41.5% Agreed with **4.0684** mean score and median 4*; V=.22) also were effective methods for the training of the needed craftspeople for the

Nigerian construction industry in the past. The relatively new *Science and Technical Colleges (STC's)* was rated lower (28.4% strongly Agreed and 41.8% Agreed with mean score of **3.3691** and median 4*; V=.19) in effectiveness for the training of craftsmen. This is understandable because the emphasis of the new STC's has shifted to preparing students for higher education at the universities.

Among the listed institutions of higher learning, the Polytechnic/Colleges of Technology were rated higher; perhaps for the training of middle-level skilled workforce for the construction industry. Crammer's V tests values for the scale varies between .19 and .27 depicting weak relationships between age group and variable choices and thus independence and validity of the scale. The Cronbach's Alpha score for the scales is 0.692 which is above the minimum acceptable (as earlier discussed) attests to the reliability of the measurement scales.

Table 5.6: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on past effective construction crafts training methods in Nigeria.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	A	DN	D	SD				
Informal (local) apprenticeship Training method	35.5	40.4	7.4	7.1	2.5	4.0687	4.00	.191	
Trade Centres	32.6	41.5	13.1	5.0	1.1	4.0684	4.00	.220	
Technical Colleges	38.7	49.3	4.6	1.8	0	4.3233	4.00	.204	
Science and Technical Colleges	28.4	41.8	13.1	7.4	1.1	.3691	4.00	.192	**0.692**
Senior Secondary	8.9	23.8	18.1	29.1	11.0	2.8945	3.00	.196	
Junior Secondary	9.2	21.6	16.7	29.8	13.5	2.8164	3.00	.194	
Technical Teachers' Colleges	14.5	36.5	19.9	13.5	7.1	3.4147	4.00	.194	
Polytechnic/Colleges of Technology	40.1	36.2	5.3	7.1	7.1	3.9926	4.00	.271	
University Education	19.9	25.5	9.9	24.1	13.5	3.1527	3.00	.229	

5.6.3 Analysis of current Effective Methods for training construction skills in Nigeria

As shown in Table 5.7, 86.6% (50.4% strongly Agreed and 36.2% Agreed with a mean score of **4.3519** and median 5*; V=.20) of the respondents were of the opinion that

formal apprenticeship - classroom instruction combined with practical site work; is a very effective method for construction crafts training. The *Science and Technical Colleges (STCs)* which has lately replaced the former Trade Centres and Technical Colleges in the Nigerian educational system *were rated lower in effectiveness* (36.5% strongly Agreed and 45.0% Agreed with a mean score of **4.2030** and median 4*; V=.19). *Vocational Innovation and Enterprise Institutes (VIEIs)* route which is relatively a new method and in the purview of private investors, is rated third by the respondents with (28.4% strongly Agreed, Agreed 45.0%, with a mean of **4.000** and median 4*; V=.21). Crammer's V test values for the variables within the scale ranges between .14 and .24; signifying no strong associations between the age-group and choice of variable also supporting the validity of the scale. Cronbach's Alpha score for the scales is 0.673 > 0.5 and above the minimum acceptable (as earlier discussed) depicting the reliability of the measurement scales.

Table 5.7: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on current effective construction crafts training methods in Nigeria.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	A	DN	D	SD				
Informal (local) apprenticeship	33.3	33.3	7.8	12.1	6.4	3.8084	4.00	.238	
Formal apprenticeship (classroom instruction combined with practical site work).	50.4	36.2	3.5	3.9	1.8	4.3519	5.00	.200	
Science and Technical colleges	36.5	45.0	8.9	3.2	0.7	4.2030	4.00	.186	
Vocational/innovation enterprise Institute	28.4	45.7	12.8	4.6	2.1	4.0000	4.00	.211	**0.673**
Junior Secondary School	13.1	23.4	17.0	26.2	12.8	2.9770	3.00	.191	
Senior Secondary School	11.7	26.6	17.4	27.0	9.2	3.0502	3.00	.147	
Technical Teachers College	17.0	32.6	19.5	13.5	9.2	3.3784	4.00	.218	
Polytechnic/Colleges of Technology	39.4	42.9	3.5	8.2	1.1	4.1716	4.00	.182	
University Education	23.0	27.3	11.0	19.9	12.4	3.3068	4.00	.240	

5.6.4 Analysis of Factors militating against skills training

The variables under this proposition focus on research objective of identifying the problems militating against Vocational Education/Training in Nigeria. The purpose is to adequately assess the difficulties facing the current crafts training strategies. The analysis of the data as shown in Table 5.8 revealed that 87.9% of the respondents (62.4% strongly Agreed, 25.5% Agreed, mean **4.4632** and median 5*; V=.24) identified *poor funding of vocational education and training (VET)* as a major challenge currently militating against skills training. The *absence of modern training facilities in the existing vocational training centres* had 84.7% agreement (50.7% strongly Agreed, 34.0% Agreed, mean **4.3457**; median 5*; V=.26). Another militating factor was *the absence of an effective and workable vocational training framework* (strongly Agreed 45.0%, Agreed 37.6%, mean **4.2351** and median 4*; V=.18). Akin to the non-availability of modern training facilities is *the obsolescence of training facilities in the existing crafts skills centres* rated by respondents as one of the nagging problems confronting crafts training (strongly Agreed 45.4%, Agreed 34.8%, mean **4.2239** with a median score of 4*; V=.24). Other factors that received high ratings (> 70% Agreement) from the respondents include *government's lack of commitment to technical and vocational education and training TVET* (strongly Agreed 39.4%, Agreed 40.1%, mean **4.1348,** median score 4*; V=.20); *non-participation of construction industry's private sector* (strongly Agreed 31.6%, Agreed 39.0%, mean **3.9176**, with a median score of 4*; V=.17) and *defective training/instructional methods* (strongly Agreed 31.6%, Agreed 39.0%, mean score **3.9067** and median 4*; V=.25). Each of the remaining variables under this proposition have a median score of 4* with *unwillingness of trainees to acquire in-depth vocational knowledge* ranked the lowest. Some of the above mentioned variables, namely; poor funding, absence of training facilities, obsolescence of training facilities, defective training/instructional methods and government's lack of commitment to TVET each had Chi-square (x^2) p=0.00 indicating significance differences between the age-groups' choice of variables but the Crammer's V post test values for the scale ranging between .14 and .26 confirms the associations as weak. The Cronbach's alpha for scale's reliability was 0.762.

Table 5.8: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on Factors militating against skills training in Nigeria.

Propositions	Response Scores %					Mean	Median	Cramer's V	Crobach's Alpha
	SA	A	DN	D	SD				
poor funding	62.4	25.5	2.1	3.5	2.8	4.4632	5.00	.242	
absence of workable/ effective training framework	45.0	37.6	3.5	7.4	1.4	4.2351	4.00	.181	
absence of training facilities	50.7	34.0	4.6	5.0	1.1	4.3457	5.00	.256	
obsolescence of training facilities	45.4	34.8	7.1	6.4	1.4	4.2239	4.00	.238	
defective training/ instructional methods	31.6	39.0	10.6	11.7	2.1	3.9067	4.00	.245	
non-participation of construction industry's private sector	31.6	39.0	12.4	8.2	3.5	3.9176	4.00	.169	**0.762**
government's lack of commitment to TVET	39.4	40.1	5.3	8.5	1.4	4.1348	4.00	.201	
absence of practical instructions in TVET curriculum	24.8	39.0	17.4	10.6	1.4	3.8061	4.00	.137	
abandonment/truncation of TVET policies	26.6	40.1	18.8	5.7	2.5	3.8826	4.00	.172	
shortage of qualified TVET teachers	24.8	36.9	9.6	18.1	5.0	3.6203	4.00	.183	
unwillingness of trainees to acquire in-depth vocational knowledge	27.3	29.4	12.4	17.7	7.1	3.5547	4.00	.165	

5.6.5 Analysis of effects of skills training problems on skills quality and quantity

Table 5.9 shows the assessment of the severity of the effects of the training problems listed in Table 5.8 on the quality and quantity of skilled craftsmen produced for the Nigerian construction sector. 84.4% of the respondents (very severe 54.3%, somewhat severe 30.1%, mean **4.3927** and median score 5*; V=.23) were of the opinion that the identified training problems have serious implications for *the quality and standard of skilled labour supplied;* while 75.5% (very severe 36.5%, somewhat severe 39.0%, mean **4.1062,** with a median score of 4*; V=.18) agreed to the fact that the training problems also affect *the quantity or number of skilled labour supplied* to the Nigerian construction industry. Crammer's V tests values confirms the independence of choices between the age-groups and the unanimity in the choice of variables and also the validity of the scale. Cronbach's Alpha score for the scales reliability test was 0.679 > 0.5 and above the minimum acceptable implying the reliability of the measurement

scales. The goal of this aspect of the survey was to pursue the research objective of establishing the effects of skills training problems on the supply of needed skilled craftsmen to the Nigerian construction industry.

Table 5.9: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on the effects of skills training problems on the training of competent and confident skilled craftsmen.

Propositions	Response Scores %					Mean	Median	Cramer's V	Crobach's Alpha
	VS	SS	MS	LS	NE				
with regards to the quality/standard of skilled labour supplied	54.3	30.1	11.3	0.7	1.1	4.3927	5.00	.227	0.679
with regards to the quantity/number of skilled labour supplied	36.5	39.0	17.4	2.8	1.1	4.1062	4.00	.181	

5.6.6 Analysis of rating of severity of skills training problems on crafts practice

The survey attempted to further probe the effects of training problems assessed in Table 5.8 on the standard of works of selected key construction Trades in the Nigerian construction industry. The opinions of the respondents on the severity of the skills training problems on crafts practice was analyzed as shown in Table 5.10. The *Bricklayers, Blocklayers and Stonemasons' trades* are highly affected (very severe 33.3%, somewhat severe 28.7%, moderately severe 23.4%, mean **3.8773,** median 4*; V=.19). The *Plasterers and Stucco Masons' trades* were rated second (very severe 28.0%, somewhat severe 34.4%, moderately severe 24.8%, mean **3.8619** median 4*; V=.18). The *Structural Reinforcing/Welding trades* also had high rating (very severe 27.7%, somewhat severe 29.8%, moderately severe 28.7%, mean **3.7985,** with a median score of 4*; V=.18). The problems affecting skills training in Nigeria is also adjudged by the respondents to have implication for the standard of work of those in *Plumbing and Pipe-laying trades* (very severe 27.3%, somewhat severe 29.8%, moderately severe 28.4%, mean **3.7584** and median score 4*; V=.21). Other crafts' practice considered to be severely affected by the training problems include *Concretors* (mean score **3.7407**, median 4*; V=.20), *Carpenters and Joiners* (mean score **3.6729**, median 4*; V=.19) and the *Sheet Metal work trade* (mean **3.6704** and median score 4*; V.22). Other listed trades had a median score of 4* each

except for the *Glaziers and Construction Labourers' trades* with median scores of *3**. The construction labourers' trade as practiced in the Nigerian construction industry is not considered to require any formal training and glazing is practiced along with carpentry trade - these facts may account for the low scores for the two trades. Crammer's V test values for the scale varied between .19 and .23 denoting weak associations between age and opinion, also indicating that the respondents agreement cut across the various ages-groups and thus the validity of the scale. The Cronbach's Alpha score for reliability of the scale was 0.891, indicating a highly reliable measurement scale.

Table 5.10: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on the severity of skills training problems on work standard of selected building trades craftsmen.

Propositions	Response Scores %					Mean	Median	Cramer's V	Crobach's Alpha
	VS	*SS*	*MS*	*LS*	*NS*				
Bricklayers, Blocklayers and Stonemasons	33.3	28.7	23.4	8.2	1.8	3.8773	4.00	.193	
Concretors	26.6	29.1	31.2	6.4	2.5	3.7407	4.00	.197	
Carpenters and Joiners	23.4	34.8	24.5	8.2	4.6	3.6729	4.00	.194	
Painters and Decorators	17.0	34.4	31.2	9.9	2.8	3.5539	4.00	.181	
Wood workers/Machinists	18.4	35.1	30.1	9.9	1.4	3.6231	4.00	.230	
Plumbers, Pipe-layers	27.3	29.8	28.4	7.8	2.1	3.7584	4.00	.212	
Plasterers and Stucco Masons	28.0	34.4	24.8	7.1	0.7	3.8619	4.00	.176	**0.891**
Sheet Metal Workers	19.9	33.3	33.0	7.4	1.1	3.6704	4.00	.218	
Structural, Reinforcing work/Welders	27.7	29.8	28.7	8.5	0.4	3.7985	4.00	.178	
Electricians	20.9	28.0	33.0	10.3	2.5	3.5768	4.00	.206	
Glazier	11.7	31.2	37.6	11.7	2.1	3.4098	3.00	.221	
Roofers	22.7	29.1	27.0	12.4	3.9	3.5709	4.00	.229	
Terrazzo skilled workers	19.1	29.1	29.8	15.6	1.4	3.5149	4.00	.209	
Construction Labourers	25.5	20.2	17.4	15.2	16.7	3.2388	3.00	.192	

5.6.7 Analysis of how the organized private sector could positively impact or promote effective crafts training in Nigerian construction sector.

The ratings of the respondents on the possible ways by which the Nigerian organized private construction sector could positively influence crafts training and development is presented Table 5.11. 93.3% of the respondents (strongly Agreed 66.0%, Agreed 27.3%; mean **4.6204**, median 5*; V=.19) supported the idea that the private sector *establish*

training schools for the training and development skills in the construction sector. 91.9% (strongly Agreed 54.3%, Agreed 37.6%; mean **4.4945**, median score 5*; V=.19) recommended that construction companies should be involved by *sponsoring craftsmen for further skills training.* Next in the ranking was the need for the private construction sector to *purchase tools and equipment for vocational training institutes* with 89.7% support (strongly Agreed 51.8%, Agreed 37.9%; mean **4.4124,** and median score 5*; V=.17). 90.8% of the respondents (strongly Agreed 48.6%, Agreed 42.2%, mean score **4.3978,** median 4.5*; V=.17) agreed to the organized private construction sector *accepting vocational education students and apprentices for work related experience.* 87.6% (strongly Agreed 47.9%, Agreed 39.7%; mean **4.3370**, median 4*; V=.19) opined that the private sector *establish vocational training centres for the training of youths in their areas of operation;* While 85.5% (strongly agreed 47.9%, Agreed 37.6%, mean **4.3260,** and median score 4*; V=.23) indicated that organized private sector should promote skills development by *organizing regular in-house improvement courses and workshops for craftsmen.* All other variables in the scale proved to be equally relevant with each having a median score of 4*. Crammer's V test values of between .16 and .23 signifies low strength of association between the various group of respondents and their perception, uniformity of agreement and also indicated the validity of the scale. The Cronbach's Alpha score for the scale's reliability was 0.800 indicating that variables in the scale are reliable for the measurement.

Table 5.11: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on how Nigerian organized private construction sector could positively contribute to effective training of construction craftsmen.

Propositions	Response Scores %					Mean	Median	Cramer 's V	Cronbach 's Alpha
	SA	A	DN	D	SD				
establish training schools for skills training/ development	66.0	27.3	2.1	1.8	0	4.6204	5.00	.187	
sponsor craftsmen for further skills training	54.3	37.6	3.5	1.4	0	4.4945	5.00	.190	
sponsor tradesmen for professional development/ conferences	44.0	40.4	8.5	3.2	0.7	4.2784	4.00	.158	
contribute fixed percentage of profit after tax towards vocational education	35.1	39.4	11.7	8.5	2.1	4.0000	4.00	.202	
provide programmed instruction for craftsmen	34.4	43.3	11.7	5.0	2.1	4.0662	4.00	.195	
organize regular in-house improvement courses/ workshops for craftsmen	47.9	37.6	7.4	2.8	1.1	4.3260	4.00	.231	**0.800**
recruit unskilled youth for training	41.5	42.6	7.8	3.9	1.4	4.2226	4.00	.206	
recruit willing un-skilled adults for training	41.1	40.1	7.1	5.7	1.8	4.1815	4.00	.155	
accept vocational students/apprentices for work experience	48.6	42.2	3.5	2.1	0.7	4.3978	4.50	.167	
purchase tools and equipment for vocational institutes	51.8	37.9	3.5	3.5	0.4	4.4124	5.00	.174	
involve with 'trade-testing' and examination of vocational students	44.0	38.7	9.9	3.5	0.4	4.2684	4.00	.159	
establish private vocational training centres for the training of youths in their areas of operation.	47.9	39.7	3.5	5.3	0.4	4.3370	4.00	.189	

5.6.8 Reasons why Nigerian youths are not showing interest in acquiring construction related skills

Table 5.12 shows the submission of the survey participants on reasons why most Nigerian youths are not showing interest in acquiring construction related skills. Top on the list of apparent reasons why the youth generation are not considering acquisition of skills was due to *lack of adequate guidance and counselling as to the importance and relevance of skills* as a career. 84.8% of the respondents (strongly Agreed 36.2%, Agreed 48.6%, mean **4.1889,** and median score 4*; V=.22) supported the point. Similar to the above mentioned and second on the list was the *lack of adequate forum for mobilising youth for skills acquisition* with 79.8% agreement (strongly Agreed 36.5%, Agreed 43.6%, mean score **4.1185,** median 4*; V=.17). 78.7% of the survey participants (strongly Agreed 34.0%, Agreed 44.7%, mean **4.0517,** with a median score of 4*; V=.24) viewed *poor rate of pay for construction site workers* as one of the major reasons why Nigerian youths are indifferent towards acquiring construction related skills. A good percentage of the respondents (70.4%) also pin-pointed the social problem *of the get rich quick orientation in the nation* as another relevant reason why youths are showing apathy towards acquiring construction related skills (strongly Agreed 39.4%, Agreed 31.6%, mean **4.0111,** median score 4*; V=.19). 75.5% (strongly Agreed 35.1%, Agreed 40.4%, mean score **3.9779,** median 4*; V=.22) were of the opinion that the reason the youth are not attracted to acquisition of construction related skills is because *the Nigerian government do not encourage skills acquisition.* 74.1% of the responses (strongly Agreed 27.3%, Agreed 46.8%, mean score **3.9366;** median 4*; V=.16) favoured the problem of *lack of clear-cut career path for craftsmen* as a reason youths are not showing interest in skills acquisition. Other propositions with significant mean scores in this scale include the *lack of job security in the construction industry* 73.8% agreement (strongly Agreed 31.2%, Agreed 42.6%, mean **3.9041**; median 4*; V=.21), *lack of respect or dignity for Artisans* 73.0% agreement (strongly Agreed 31.9%, Agreed 41.1%, mean **3.9037**; median 4*; V=.22), *too much emphasis on general/secular education* (mean score **3.8852;** median 4*; V=.22), and *lack of recognition for Artisans* (mean 3:8118; median score 4*; V=.23). All other propositions had a median score of 4* except for the problem of *excessive cost of vocational training* which had a median score of 3* and V=.22. The lowest value of .15 and highest value of .24 for the Crammer's V test indicated that there is a weak association between the opinions of the respondents and their age-group; it also shows that they are

united in their perception of the reasons why the youth generation seem not showing interest in skills acquisition and implied the validity of the scale. The Cronbach's alpha value for the scale's reliability was 0.788. The analysis in this section will assist immensely in achieving the research objective to unravel the reasons the younger generation in Nigeria seems not showing interest in acquiring construction related skills.

The data collected for this section and analyzed in Table 5.12 was cross-tabulated against the age group in order to appreciate the emphasis the younger generation placed on some of the highly rated propositions on reasons the youth generations seem not to show interest in acquisition of construction related skills; and to test if there is any significant difference between the perception of the younger and older respondents on selected variables in the scale. The output of the cross-tabulation and chi-square test result is presented in Table 5.13.

The age-groupings were re-arranged as indicated for the purpose of the cross-tabulation. For the purpose of this report; 15-30 years group is regarded as the younger generation, 31-45 years as middle aged group, 46-60 years group as aged and 61-65 and above as senior citizen respondents.

Table 5.12: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on the assessment of reasons why Nigerian youths are not showing interest in acquiring construction related skills.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	A	DN	D	SD				
hazardous nature of construction site works	19.9	29.1	12.1	21.6	13.5	3.2103	4.00	.229	
poor rate of pay for site workers	34.0	44.7	6.7	9.6	1.1	4.0517	4.00	.238	
lack of recognition for Artisans	29.8	41.1	7.8	12.1	5.3	3.8118	4.00	.232	
lack of respect/dignity for Artisans	31.9	41.1	6.0	14.9	1.8	3.9037	4.00	.218	
government do not encourage skills acquisition	35.1	40.4	7.1	11.3	2.5	3.9779	4.00	.221	
no clear-cut career path for craftsmen	27.3	46.8	9.2	11.0	0.7	3.9366	4.00	.153	
the youth lack adequate guidance and counselling to take to skills acquisition	36.2	48.6	5.3	4.3	1.4	4.1889	4.00	.224	**0.788**
there is no adequate forum for mobilising youth for skills acquisition	36.5	43.6	7.8	6.0	1.8	4.1185	4.00	.171	
construction site work is viewed by the youth as too difficult a task	26.6	36.5	12.8	12.1	7.1	3.6679	4.00	.192	
construction site work is viewed by the youth as too degrading	26.2	40.4	7.8	17.4	3.5	3.7222	4.00	.193	
the youth generation are lazy and hence unwilling to acquire skills	24.5	29.8	13.8	19.9	7.8	3.4519	4.00	.191	
too much emphasis on general/secular education	36.5	31.6	11.0	13.5	3.2	3.8852	4.00	.221	
it is too expensive to receive vocational training	12.8	32.3	12.1	28.0	10.3	3.0967	3.00	.221	
the get rich quick orientation in the nation	39.4	31.6	13.1	9.9	1.8	4.0111	4.00	.185	
lack of adequate provision for protection and safety of site workers	26.6	34.8	14.5	17.4	2.8	3.6753	4.00	.182	
lack of encouragement or incentive from political leaders	37.6	34.8	8.9	10.3	2.8	3.6692	4.00	.239	
absence of health and safety training from the vocational education curriculum	23.8	35.5	17.0	16.7	3.2	3.6236	4.00	.156	
lack of job security in the construction industry	31.2	42.6	8.2	10.3	3.9	3.9041	4.00	.211	

Table 5.13 Cross-tabulation of age-group and reasons youth do not show interest in acquiring skills

Variable	Age-range (yrs)	% Response Scores					% Total Agreed (SA+A)	Chi-square (x^2) test	Cramer'sV
Lack of adequate guidance and counselling for youth to take to skills acquisition		SA	A	DN	D	SD		.031	.224
	15-30	33.3	55.3	7.0	4.4	0	88.6		
	31-45	41.8	48.2	5.5	3.6	0.9	90.0		
	46-60	35.7	50.0	2.4	4.8	7.1	85.7		
	61-65	1	0	0	0	0	100.0		
there is no adequate forum for mobilising youth for skills acquisition		SA	A	DN	D	SD		.702	.171
	15-30	3.6	54.0	6.2	5.3	0.9	87.6		
	31-45	45.6	39.0	9.0	4.6	1.8	84.6		
	46-60	32.6	39.5	9.3	14.0	4.8	72.1		
	61-65	0	1	0	0	0	100.0		
poor rate of pay for site workers		SA	A	DN	D	SD		.006	.238
	15-30	28.3	50.4	11.9	8.8	0.9	78.7		
	31-45	40.5	47.7	2.7	9.1	0	88.2		
	46-60	41.9	34.9	2.3	16.3	4.6	76.8		
	61-65	1	0	0	0	0	100.0		
the get rich quick orientation in the nation		SA	A	DN	D	SD		.443	.185
	15-30	33.6	38.1	15.9	10.6	1.8	71.7		
	31-45	49.1	26.4	10.0	12.7	1.8	75.5		
	46-60	41.9	37.2	16.3	2.3	2.3	79.1		
	61-65	0	0	1	0	0	100.0		
government do not encourage skills acquisition		SA	A	DN	D	SD		.035	.221
	15-30	30.7	46.5	9.6	13.2	0	77.2		
	31-45	37.8	44.1	5.4	10.8	1.8	81.9		
	46-60	46.5	25.6	4.7	11.6	11.6	72.1		
	61-65	1	0	0	0	0	100.0		

As shown in Table 5.13, the problem of *lack of adequate guidance and counselling for youth to take to skills acquisition* was viewed as the most striking reason the Nigerian youth are not showing interest in acquiring construction related skills by 88.6% of the younger generation, 90.0% of the middle aged, 85.7% of the aged respondents and the only senior citizen that participated in the survey. A Chi-square test for independence with

(Pearson chi-square) indicated minor difference between age group and choice of the particular variable: $x^2(36, N=267) = p = .030 < .05$; V = .22. Cramer's V value of .22 signifies that the strength of association between age and preference is weak and that age did not seriously influence the perception of respondents on choice of the variable. As earlier stated, the value of Cramer's V varies between 0 and 1, a value close to 0 shows little association between variables; close to 1; it indicates a strong association (Cramer 1999; Bryman and Cramer 2009). The second variable in the ranking was due to *inadequate forum for mobilising youth for skills acquisition;* 87.6% Agreed by the younger generation group, 84.6% of the middle aged agreed to it as being the a reason; while 72.1% of the aged agreed along with the only senior citizen that participated in the survey. $x^2(36, N=267) = p = .70$; V=.17. The x^2 test indicates that there is no significance difference in the perception of the various groups in their perception. Cramer's V value of .17 indicates a very weak association between the age and choice of variable and implying that all the age groups are unanimous in agreement thus signifying validity of the scale. *Poor rate of pay for site workers* was another variable; with 78.7% younger generation, 88.2% middle aged and 76.8% aged agreement. x^2 (36, N=267) = $p = .01$ indicating a level of difference in choice; V=.24 indicates a weak association. The *get rich quick orientation* which is a social problem had percentage agreement (71.7 younger generation, 75.5 middle aged and 79.1 aged; x^2 (36, N=267) = $p = .44$ and V=.19: indicating no association). *Government do not encourage skills acquisition* had percentage agreement (77.2 of younger generation group, 81.9 of the middle aged and 72.1 of the aged; x^2 test $p = .04$ and V=.22: indicating some degree but weak strength of association).

5.6.9 Strategies for motivating Nigerian youths to develop interest in skills acquisition

Table 5.14 presents the opinions of the respondents concerning the propositions on the effective strategies that could be explored for motivating the youth generation to develop interest in acquiring construction related skills. Top on the list of possible strategies as opined by the participants was to *make craftsmen wages attractive.* 93.4% agreed to this proposition (strongly Agreed 59.2%, Agreed 34.2%; mean score **4.5926**, median 5*; V=.17). 87.6% of the respondents (strongly Agreed 53.9%, Agreed 33.7%; mean **4.4607** with a median score of 5*; V=.17) supported the need to *properly fund technical*

vocational education and training (TVET) such that it will be attractive to the youth generation. Rated third and fourth on the scale was the necessity to *make career guidance and counselling mandatory at the senior secondary and junior secondary school levels* of the nation's educational system; 87.5% agreement was recorded for senior secondary level (strongly Agreed 49.6%, Agreed 37.9%; mean **4.4157,** median 5*; V=.22), and 86.5% (strongly Agreed 45.7%, Agreed 40.8%; 4.3521 and median 4*; V=.17) for the junior secondary level. Other highly recommended approaches to get the youth motivated for skills acquisition was the need to *make general education skills-based,* 87.5%; (strongly Agreed 41.8%, Agreed 45.7%; mean **4.3258**, median 4*; V=.22), and *accord recognition to skills/vocational education;* 83.0% (strongly Agreed 46.8%, Agreed 36.2%; mean 4.3146 with a median score of 4*; V=.21). All other propositions in the scale had a median score of 4* each, implying that they are each relevant towards motivating the youth generation to develop interest in construction related skills acquisition. Crammer's V test values for the variables in the scale range between .15 and .22, indicating low strength of association between variables while the chi-square test showed no significant difference; implying validity of the scale and unanimity of opinions among survey participants. The Cronbach's Alpha value for the reliability of the scale was 0.758.

Table 5.14: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on the strategies that could be explored to motivate Nigerian youths to develop interest in the acquisition of construction related crafts.

Propositions	Response Scores %					Mean	Median	Cramer's V	Crobach's Alpha
	SA	*A*	*DN*	*D*	*SD*				
make skills and vocational training free	47.2	35.5	2.5	8.9	1.4	4.2379	4.00	.146	
make craftsmen wages attractive	59.2	34.2	2.5	0	0	4.5926	5.00	.171	
make skills trainees earn while they learn	45.4	35.5	7.4	6.0	0.7	4.2500	4.00	.139	
ensure dignity of labour for craftsmen	40.4	46.1	5.0	1.8	1.4	4.2921	4.00	.221	
make general education practical/skills oriented	41.8	45.7	3.9	2.5	0.7	4.3258	4.00	.218	
accord recognition to skills/vocational education	46.8	36.2	7.4	3.2	1.1	4.3146	4.00	.209	**0.758**
make skills instruction mandatory at junior secondary	33.3	39.7	6.4	12.1	3.2	3.9288	4.00	.167	
make skills instruction mandatory at senior secondary	33.7	41.1	6.4	11.3	2.1	3.1983	4.00	.176	
de-emphasize non-skilled general education	23.4	29.8	15.2	20.2	6.0	3.4682	4.00	.182	
properly fund technical/vocational education	53.9	33.7	4.3	2.5	0.4	4.4607	5.00	.170	
make career guidance and counselling mandatory at junior secondary level	45.7	40.8	4.3	3.5	0.4	4.3521	4.00	.169	
make career guidance and counselling mandatory at senior secondary level	49.6	37.9	4.3	2.5	0.4	4.4157	5.00	.217	

Table 5.15 shows the result of cross-tabulation of age groupings and the highly ranked postulated strategies that could be explored to motivate Nigerian youths to develop interest in skills acquisition.

Table 5.15 Cross-tabulation of age-group and strategies to motivate youth to develop interest in skills acquisition

Variable	Age-range (yrs)	% Response Scores					% Total Agreed (SA+A)	Chi-square (x^2) test	Cramer's V
		SA	A	DN	D	SD			
make craftsmen wages attractive	15-30	57.0	41.2	1.8	0	0	98.2	.614	.171
	31-45	67.9	29.4	2.7	0	0	97.3		
	46-60	60.5	37.2	2.3	0	0	97.7		
	61-65	0	1	0	0	0	100.0		
properly fund technical/vocational education		SA	A	DN	D	SD		.730	.170
	15-30	50.5	42.3	2.7	4.5	0	92.8		
	31-45	62.4	29.4	5.5	1.8	0.9	91.8		
	46-60	62.8	32.6	4.6	0	0	95.4		
	61-65	0	1	0	0	0	100.0		
make career guidance and counselling mandatory at senior secondary level		SA	A	DN	D	SD		.062	.217
	15-30	47.3	43.8	7.1	1.8	0	91.1		
	31-45	59.3	37.9	0.9	1.9	0	97.2		
	46-60	51.2	32.6	6.9	6.9	2.4	83.8		
	61-65	0	1	0	0	0	100.0		
make career guidance and counselling mandatory at junior secondary level		SA	A	DN	D	SD		.742	.169
	15-30	43.8	44.6	6.2	4.5	0.9	88.4		
	31-45	52.7	43.5	1.9	1.9	0	96.2		
	46-60	51.2	37.2	4.7	6.9	0	88.4		
	61-65	0	1	0	0	0	100.0		
make general education practical/skills oriented		SA	A	DN	D	SD		.057	.218
	15-30	43.8	47.2	3.6	3.6	1.8	91.0		
	31-45	41.6	50.9	5.6	1.9	0	92.5		
	46-60	53.5	44.2	0	2.3	0	97.7		
	61-65	0	0	1	0	0	100.0		

The first variable to *make craftsmen wages attractive* had percentage agreements of (younger generation 98.2, middle aged 97.3, aged respondents 97.7; **x^2=.61, V=.17).** The second variable; *properly fund technical/vocational education (tve)* attracted percentage responses of (younger generation 92.8, middle aged 91.8, aged 95.4; and **x^2=.73, V=.17).**

The variable that ranked third; *make career guidance and counselling mandatory at senior secondary level* received percentage (91.1 youth class, 97.2 middle aged, and 83.8 aged class agreement; with recorded chi-square test x^2=**.06** and **V=.22**). The variable; *make career guidance and counselling mandatory at junior secondary school level* had (88.4 youth generation, 96.2 middle aged group and 88.4 percent aged class agreements; with x^2 **=.74 and V=.17**). The variable; *make general education practical/skills oriented* recorded percentage agreement of (91.0 younger generation. 92.5 middle aged group and 97.7 aged class; with x^2**= .06** and **V=.22**). The x^2test results in the above analyses ranging from .057 to .742 indicated no significance difference in the choice of strategies preference for motivating youth to develop interest in skills acquisition; that is to say that age group did not influence variable choices. The Cramer's V values ranging from .169 to .218 depicts weak associations between age groupings and choice of variables; the implication is that the youth as well as the adult generations have the same opinions as to the approaches that could be explored in sensitizing and motivating the youth to develop interest in acquiring construction related vocational skills.

5.6.10 Avenues for mobilizing youths for skills training

Table5.16 shows response pattern to the propositions on possible avenues through which the youth generation in Nigeria could be reached for the purpose of mobilization for skills training. 79.1% (strongly Agreed 47.9%, Agreed 31.2%; **mean 4.26041,** median 5*; V=.20) recommended that allied *Professional bodies in the construction industry* could be useful avenue through which the youth could be reached for the purpose of mobilization and recruitment for training. 80.1% (strongly Agreed 34.4%, Agreed 45.7%; mean score **4.1321,** median 4*; V=.20) believed that the *Local government councils* could be the best avenues for youth mobilization. 77.4% (strongly Agreed 42.6%, Agreed 34.8%; mean **4.1015,** median score 4*; V=.21) viewed *Youth associations and clubs* as associations through which the youth generation could be adequately mobilized for skills training. 78.0% (strongly Agreed 31.2%, Agreed 46.8%; mean **4.0875,** median 4*; V=.20) supported mobilizing the youth through *the senior secondary schools*; while 78.4% (strongly Agreed 31.2%, Agreed 47.2%; mean **4.0837**, mean score 4*; V=.20) agreed to reaching out to the

youth through *the junior secondary schools.* Crammer's V test values of .16 - .22 for the variables within the scale connotes low strength of association between group and their perceptions, indicating uniformity of agreement and confirming the validity of the scale. Other propositions within the scale has median scores of 4* each, implying that they are all relevant avenues through which the youth generation could be reached for the purpose of motivation for skills acquisition. Cronbach's alpha value for the scale's reliability was 0.833.

Table 5.16: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on the avenues that could be explored to mobilize Nigerian youths for the purpose of acquisition of construction related crafts skills.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	*A*	*DN*	*D*	*SD*				
Youth associations and clubs	42.6	34.8	4.6	8.9	3.5	4.1015	4.00	.205	
Market Associations and clubs	17.7	43.3	12.4	15.6	4.6	3.5758	4.00	.185	
Parents/families/homes	30.5	43.6	9.2	8.2	1.8	3.9962	4.00	.218	
Parents/Teachers' associations in schools	29.8	43.3	9.6	7.4	2.8	3.9656	4.00	.197	
Religious organizations and groups	28.4	46.1	8.2	7.8	2.5	3.9695	4.00	.195	**0.833**
Social groups/clubs	25.9	44.0	11.0	10.3	2.8	3.8491	4.00	.167	
Junior secondary schools	31.2	47.2	7.8	5.7	1.4	4.0837	4.00	.199	
Senior Secondary schools	31.2	46.8	8.5	5.7	1.1	4.0875	4.00	.199	
Trade Unions	37.6	32.6	13.5	7.8	1.8	4.0342	4.00	.161	
Professional bodies	47.9	31.2	8.5	4.3	2.1	4.2604	5.00	.197	
Local government councils	34.4	45.7	6.7	6.0	1.1	4.1321	4.00	.203	

The analysis of the cross-tabulation of age-groupings and possible avenues for mobilizing youth for skills acquisition is shown in Table 5.17. The variable of reaching the youth through the *allied construction professional bodies* was favoured with (78.4% agreement from the younger generation group, 88.1% middle aged group and 92.7% agreement from the aged respondents' group; the chi-square x^2= **.28** and Cramer's **V=.20**). The proposition

of mobilizing the youth generation through *cooperation or collaboration with the local government councils* was supported by (84.7% of younger generation class, 87.2% middle aged and 85.4% of the aged group; x^2=.19 and V=.20). The avenue of mobilising *the youth through youth associations and clubs* had agreement of (82.8% younger generation, 81.8% middle aged group and 80.5% aged class; with x^2=.17 and V= .21). *Reaching the youth generation through the senior secondary school level* received agreement of (86.5% younger generation age-group, 81.5% middle aged group, and 80.4% aged class; with x^2 =.26 and V=.20). The option of mobilizing the youth generation through *junior secondary schools* had (81.9% younger generation, 86.1% middle aged class and 87.5% aged group agreements; with x^2=.26 and V=.20). The x^2 results ranging from .168 to .276 for the scale indicates no statistically significant association between age-groupings and opinions on the possible avenues through which the youths could be reached for the purpose of mobilization for skills acquisition, this confirms the validity of the scale; also the Cramer's V values of between .199 and .205 indicates weak associations between age-groupings and preferences for variable choices, indicating that both the younger and the older generations are united in opinions as to the methods of reaching out to the youth for the purpose of recruitment for skills acquisition.

Table 5.17: Cross-tabulation of age-group and avenues for mobilizing youth for skills acquisition

Variable	Age-range (yrs)	% Response Scores					% Total Agreed (SA+A)	Chi-square (x^2) test	Cramer's V
		SA	A	DN	D	SD			
Professional bodies	15-30	42.4	36.0	9.0	8.1	4.5	78.4	.276	.197
	31-45	61.5	26.6	9.2	1.8	0.9	88.1		
	46-60	48.8	43.9	7.3	0	0	92.7		
	61-65	0	1	0	0	0	100.0		
		SA	A	DN	D	SD			
Local government councils	15-30	29.8	54.9	9.0	5.4	0.9	84.7	.191	.203
	31-45	42.3	44.9	5.5	5.5	1.8	87.2		
	46-60	39.0	46.4	2.4	12.2	0	85.4		
	61-65	0	0	1	0	0	100.0		
		SA	A	DN	D	SD			
Youth associations and clubs	15-30	41.4	41.4	3.7	9.0	4.5	82.8	**.168**	**.205**
	31-45	49.1	32.7	5.5	10.0	2.7	81.8		
	46-60	46.4	34.1	7.3	7.3	4.9	80.5		
	61-65	1	0	0	0	0	100.0		
		SA	A	DN	D	SD			
Senior Secondary schools	15-30	26.5	60.0	9.0	4.5	0	86.5	**.255**	**.199**
	31-45	39.8	41.7	11.1	6.5	0.9	81.5		
	46-60	34.1	46.3	4.9	9.8	4.9	80.4		
	61-65	0	1	0	0	0	100.0		
Junior secondary schools		SA	A	DN	D	SD			
	15-30	25.5	56:4	11.8	5.4	0.9	81.9	**.256**	**.199**
	31-45	37.0	49.1	7.4	4.6	1.9	86.1		
	46-60	45.0	42.5	0	10.0	2.5	87.5		
	61-65	0	1	0	0	0	100.0		

5.6.11 Strategies for producing needed craftsmen to address craft skills shortages

The analysis of data collected on possible strategies for producing the required number of competent craftsmen to effectively address crafts skills shortage problems in the Nigerian construction sector is presented on Table 5.18. 89.7% of the respondents (strongly Agreed 54.6%, Agreed 35.1%; mean **4.5094,** median score 5*; V=.17) agreed to the approach to *get construction companies involved in skills training.* 89.0% (strongly Agreed 51.8%, Agreed 37.2%; mean score **4.4382,** median 5*; V=.20) of the responses supported the idea of *establishing special apprenticeship training centres* for the training of construction crafts. 89.4% of the participants (strongly Agreed 45.4%, Agreed 44.0%; mean **4.4259,** median 4*; V=.19) opined that there is a need to *mobilize unskilled youth for skills training.*

The approach of *re-introducing the apprenticeship scheme and making it effective* was supported by 87.6% of the respondents (strongly Agreed 40.1%, Agreed 47.5%; mean **4.3333**, median 4*; V=.23) while the strategy of *re-training the existing or currently available crafts-people* was supported by 77.3% (strongly Agreed 34.4%, Agreed 42.9%; mean **4.0722**, median score 4*; V=.20) of the respondents. 73.4% (strongly Agreed 39.0%, Agreed 34.4%; mean **4.0608,** median 4*; V=.18) agreed to *adoption of multi-skilling approach in the training of new construction crafts trainees.* The remaining two variables in the scale had a mean score of 4* each; implying their relevance to tackling the craft skills shortages in the Nigerian construction industry. The lowest Crammer's V value for variables in the scale was .17 and the highest .23; indicating scale's validity and uniformity in opinion pattern among respondents. The Cronbach's Alpha value for the scale reliability was 0.723.

Table 5.18: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on possible strategies for producing needed craftsmen to effectively address crafts skills shortages in the Nigerian construction sector.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	*A*	*DN*	*D*	*SD*				
adopt multi-skilling method for new skills/vocational trainees	39.0	34.4	7.4	11.3	1.1	4.0608	4.00	.184	
mobilize unskilled youth for skills training	45.4	44.0	2.8	0.4	0.8	4.4259	4.00	.193	
get construction companies involved in skills training	54.6	35.1	3.5	1.4	0	4.5094	5.00	.173	
re-introduce the apprenticeship scheme and make it effective	40.1	47.5	3.9	1.4	0.7	4.3333	4.00	.225	**0.723**
make secondary education skill-based	33.3	42.6	8.9	8.2	1.4	4.0414	4.00	.209	
group sub-contractors for purpose of training apprentices	25.9	39.4	14.9	11.7	1.8	3.8106	4.00	.180	
re-train the existing craftsmen	34.4	42.9	5.7	8.9	1.4	4.0722	4.00	.201	
establish special apprenticeship training centres	51.8	37.2	2.5	1.8	1.4	4.4382	5.00	.195	

5.6.12 Agencies for quality assurance and benchmarking

Figure 5.19 shows response pattern to the propositions on the appropriate agencies that could be charged with the responsibilities of assuring quality and benchmarking of crafts skills training in the Nigerian construction sector. Greater percentage of the responses; 87.9% (strongly Agreed 51.4%, Agreed 36.5%; mean score **4.4586,** median 5*; V=.17) opted for the *organized construction industry sector (OCIS).* 85.8% (strongly Agreed 44.7%, Agreed 41.1%; mean **4.3598,** median 4*; V=.22) supported the idea of establishing the *Nigerian construction industry training board (NCITB)* and charge the board for the regulation of construction crafts training. The option of making the *vocational training institutes(VTIs)* responsible for the quality assurance and benchmarking of construction sector craft skills training was endorsed by 83% (strongly Agreed 46.8%, Agreed 36.2%; mean **4.3346,** median 5*; V=.20) of the respondents. 82.3% (strongly Agreed 46.5%, Agreed 35.8%; mean score **4.3283,** median 4*; V=.26) preferred the benchmarking and quality assurance to be enforced by the *construction industry professional bodies otherwise known as the Association of Professional Bodies of Nigeria (APBN)*; while 81.6% (strongly Agreed 42.6%, Agreed 39.0%; mean **4.2614,** median score 4*; V=.23) agreed that the existing *National board for technical education (NBTE)* should take charge of crafts training benchmarking and quality control. 84.0% (strongly Agreed 37.9%, Agreed 46.1%; mean **4.2415**, median 4*; V=.24) wanted the creation of *National Construction apprenticeship/skills training board (NCATB)* which is more or less same as the above listed *Nigerian construction industry training board (NCITB).* Crammer's V test values for the scale range from .13 to .26, indicating low strengths of association between age group and choice of propositions thus signifying uniformity of agreement among various age groups and implying the validity of the scale. Cronbach's alpha for the reliability of the scale was 0.826.

Table 5.19:% Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on agencies that could ensure quality assurance and benchmarking of the Nigerian construction sector's crafts skills training approaches.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	*A*	*DN*	*D*	*SD*				
organized construction industry sector	51.4	36.5	4.6	1.8	0	4.4586	5.00	.166	
construction labour unions	36.5	41.1	8.2	5.7	1.8	4.1255	4.00	.136	
Federal government labour ministry	39.4	39.7	7.8	5.7	1.4	4.1698	4.00	.223	
State government education ministry	28.4	41.8	12.4	10.6	0.7	3.9208	4.00	.257	
Local government education board	33.3	40.8	11.0	6.4	2.1	4.0341	4.00	.234	
National board for technical education	42.6	39.0	6.0	6.0	0	4.2614	4.00	.185	**0.826**
main contractors/ construction companies	34.4	38.3	9.6	7.1	3.5	4.0000	4.00	.219	
construction industry professional bodies	46.5	35.8	7.8	3.9	0	4.3283	4.00	.262	
vocational training institutes	46.8	36.2	6.0	3.2	1.1	4.3346	5.00	.202	
Sub contractors firms	16.3	39.4	17.7	12.8	7.1	3.4829	4.00	.224	
apprenticeship/skills training board	37.9	46.1	5.7	3.2	1.1	4.2415	4.00	.240	
construction industry training board	44.7	41.1	4.6	3.2	0	4.3598	4.00	.222	

5.6.13 Agencies for examination and certification of craft trainees

Responses to the propositions on the appropriate Agencies that could be made responsible for examining and certifying construction crafts trainees is shown on Table 5.20. Establishment of a *Vocational education examination board (VEEB)* for the purpose of examination and certification of construction crafts was ranked first by 84.0% of the respondents (strongly Agreed 49.6%, Agreed 34.4%; mean **4.3726**, median 5*; V=.15). 76.6% (strongly Agreed 38.3%, Agreed 38.3%; mean **4.1073**, median 4*; V=.20); wanted the *vocational training institutes (VTIs)* to be responsible for the examination and certification of the construction crafts trainees and graduates respectively. The establishment of an *Apprenticeship scheme examination board (ASEB)* was the preferred option for 75.1% (strongly Agreed 37.2%, Agreed 37.9%; mean **4.0455**, median 4*; V=.23) of the respondents. 68.1% (strongly Agreed 32.3%, Agreed 35.8%; mean **3.8674,** median 4*; V=.23) of the survey participants agreed that the existing *National Business and Technical Examination Board (NABTEB)* should remain the examination and certification body for construction crafts trainees. Some other propositions on the scale namely: *federal government labour ministry* (mean 4*; V=.22), *state government labour ministry* (mean 4*; V=.22) and *federal education ministry* (mean 4*; V=.26) had median scores connoting that their input may be relevant in the examination and certification of crafts trainees and graduates respectively. *The West African Examination Council (WAEC)* ranked lowest on the scale. Crammer's V test values for the scale ranges between .15 and .27, indicating that age group did not significantly influence the opinions of respondents to the survey. The reliability assessment test carried out showed a high Cronbach's Alpha Value (0.800); confirming that the scale is reliable.

Table 5.20: % Scores, Mean, Median, Cramer's V test value and Cronbach's reliability rating for variables on agencies for the examination and certification of the Nigerian construction sector's crafts skills training Trainees.

Propositions	Response Scores %					Mean	Median	Cramer's V	Cronbach's Alpha
	SA	*A*	*DN*	*D*	*SD*				
vocational education examination board (to be established)	49.6	34.4	4.6	3.5	1.1	4.3726	5.00	.153	
apprenticeship scheme examination board (to be established)	37.2	37.9	6.7	8.9	2.8	4.0455	4.00	.225	
National business and technical examination board (NABTEB)	32.3	35.8	8.9	14.2	2.5	3.8674	4.00	.229	
West African Examination Council (WAEC)	13.8	19.9	11.7	38.7	7.8	2.9266	2.00	.201	**0.800**
local education board	9.2	27.0	17.4	32.3	5.7	3.0194	3.00	.214	
state education board	12.1	27.7	14.9	31.6	5.7	3.0965	3.00	.212	
federal education ministry	22.3	30.9	12.1	22.0	5.3	3.4636	4.00	.266	
state government labour ministry	22.0	39.0	10.6	17.7	2.8	3.6462	4.00	.216	
federal government labour ministry	25.9	34.8	12.1	16.0	3.2	3.6988	4.00	.217	
vocational training institutes	38.3	38.3	7.4	4.6	3.9	4.1073	4.00	.199	

5.6.14 Chapter Summary

This chapter presented the data collection method for the study, the analysis of the respondents to the questionnaire survey was also provided in the chapter. Clarifications on the methods adopted for the analyses of quantitative data collected were also given in the chapter. The chapter's main focus was the presentation of the analyses of responses to the questionnaire survey.

The chapter identified the past crafts training methods in the Nigerian construction industry and confirmed the prevalent effective methods for skills training in the sector. In consonance with the study objectives; the factors affecting the effectiveness of craft-skills training in the nation were also identified along with the attendant effects on the quality of crafts practice and the quantity of craftsmen produced for the construction sector. The perception of respondents on the reasons the younger generation in Nigeria are not showing interests in acquiring construction related skills and the strategies for motivating and mobilizing the youth for skills acquisition were also identified in the chapter.

Other issues related to the aim of the research and bordering on crafts training strategies to address the shortages of competent trades' people in Nigerian construction industry were confirmed in the chapter.

The trends in the perceptions of the various categories of respondents on the different variables under each of the propositions were noted for further clarifications in the qualitative enquiries presented in Chapter 6 of this report. The discussions of the findings of both the quantitative and qualitative analyses are presented in Chapter 7 of the report.

6.0 Qualitative Data Analysis

6.1 Aim of the Chapter

This main goal of this chapter is to report the data collection and analysis of the interviews and document analysis. The qualitative data collection and analysis were centred on achieving the objectives of the research and answering the questions of the study.

The qualitative research facilitated further exploration of emerging findings from the quantitative data analysis presented in the previous chapter.

The central document chosen for pragmatic qualitative content analysis was the Nigeria Policy on Education (NPE) 2004 edition, which is the main official document that explains the Philosophy and Goals of Education in Nigeria. The document analysis was limited to the Technical and Vocational Education (TVE) aspect of the NPE. The analysis also made references to other relevant documents available on the Nigeria Technical and Vocational Education System (NTVES) and those of relevant agencies established by the government to contribute towards the achievement of the nation's TVE agenda; especially in the area of vocational and crafts skills training. The chapter commences with the profiles of the interview participants, the method for data collection and analysis were also discussed in the chapter.

6.2 The Structure of the Qualitative Survey

Considering the need to anchor the research enquiry on logical and in-depth appreciation of concept of qualitative research; the views of Seal *et al.*, (2004); Punch (2005); Neuman (2006); Bryman (2008); Flick (2009); and Silverman (2011) were investigated.

The collective and converging views of these authors revealed that the goal of qualitative study is to explore a phenomenon comprehensively and holistically, to study and understand the subject in its complexity and context. The primary task of qualitative research is the explication of the manner in which people within a particular setting comprehend, make account, and cope with the situation. Flick (2009) views qualitative research as seeking to contribute to a better understanding of social realities and drawing attention to processes,

meanings, patterns and structural features. Qualitative research is about looking at the depth of information involved in a phenomenon (Smith & Bowers-Brown, 2010). Within the process, data is captured from local participants through the process of in-depth understanding and in going through the research materials; the researcher may isolate certain themes for careful analysis whilst maintaining originality throughout the study. According to Dainty (2008), making decisions about research design is fundamental to both the philosophy underpinning the research and the contributions that the research is likely to make.

From the views of Punch (2005); Neuman (2006); and Dainty (2008) it was further gathered that qualitative research focuses on the study of spoken and written representations and records of human experience, using multiple methods and multiple sources of data. It addresses naturally occurring and ordinary events in the natural real-life setting where the certainty of the research is reinforced by 'neighbourhood groundedness' with the data collected in close proximity to the particular situation; qualitative research stresses the applicability of social research findings to those that exist within the social situation studied.

In line with the foregoing, the qualitative data for the study were elicited from selected stakeholders and through the analyses of documents related to the phenomenon under investigation.

6.2.1 Reliability and Validity

Validity in quantitative research means the extent to which the data is plausible, credible and trustworthy; and thus can be defended when challenged. Reliability and validity remain appropriate concepts for attaining rigor in qualitative research and the qualitative researchers have to salvage responsibility for reliability and ensure validity by implementing verification strategies integral and self-correcting during the conduct and throughout the process of the inquiry. This ensures the attainment of rigor, using strategies inherent within each qualitative design itself (Golafshani, 2003; Bashir *et al.,* 2008). Maximization of the trustworthiness of the qualitative enquiry facilitates the possibilities of obtaining more credible and defensible result which can lead to generalizability; and the quality of a research is related to generalizability of the result and thereby to the testing and increasing validity or trustworthiness of the research (Stenbacka, 2001).

In ensuring the validity and reliability of the qualitative enquiry, the approach suggested by McMillan & Schumacher (2006); Seal *et al.*, (2004); Stenbacka (2001); and Burns (2000) were mostly drawn upon. In order to ensure validity, the approach of matching the research methods as close as possible with the questions of the study, against the backdrop of tackling the identified social problem; was observed. The research approaches were adequately explained and reasons behind decisions on methodological issues were clearly described. The reliability of the qualitative enquiry was observed through thorough investigations and by outlining the study with the research questions in mind. Guided by the views of Neuman (2006); Punch (2005); and Seal *et al.,* (2004); the research questions and assumptions were discussed and the choice of respondents, data collection procedures, interview structure and method of data analysis were lucidly explained.

6.2.2 Sampling

The sampling approach to the qualitative enquiry was by setting the sampling parameter; the boundaries for defining the subject of investigation were set with the view to ensuring that the questions of the research can be addressed within the available research means and resources.

Because qualitative research is usually conducted with few participants samples snuggled within the study context and studied in detail; and the tendency in qualitative enquiry is to be purposive rather than random (Huberman & Miles, 2002); the sampling for the study was carried out through careful identification of seven (7) respondents from the list compiled during the fieldwork, and based on the knowledge of the researcher about individuals whose status and experience in the subject area can be of immense value to the subject under review. The profiles of the 7 selected participants purposively selected for the qualitative research interview and the criteria for their selection are discoursed under section 6.3.

6.3 Profiles of Interview Participants

The seven participants for the qualitative interview research were selected to cut across various strata of stakeholders who could volunteer information on relevant facets of the problems militating against effective crafts' training; and other relevant data germane to the

accomplishment of the task of formulating a training formwork that could effectively address the training and development of craft-skills in the Nigerian construction sector. The interviews were also aimed at corroborating the data elicited through the quantitative survey. Other considerations for the selection include: scope of professional practice, years of experience, youth and training institutions' representations.

The practice experience of the interview survey participants (in years) is illustrated in Figure 6.1 while Table 6.1 presents the detailed profiles of the participants.

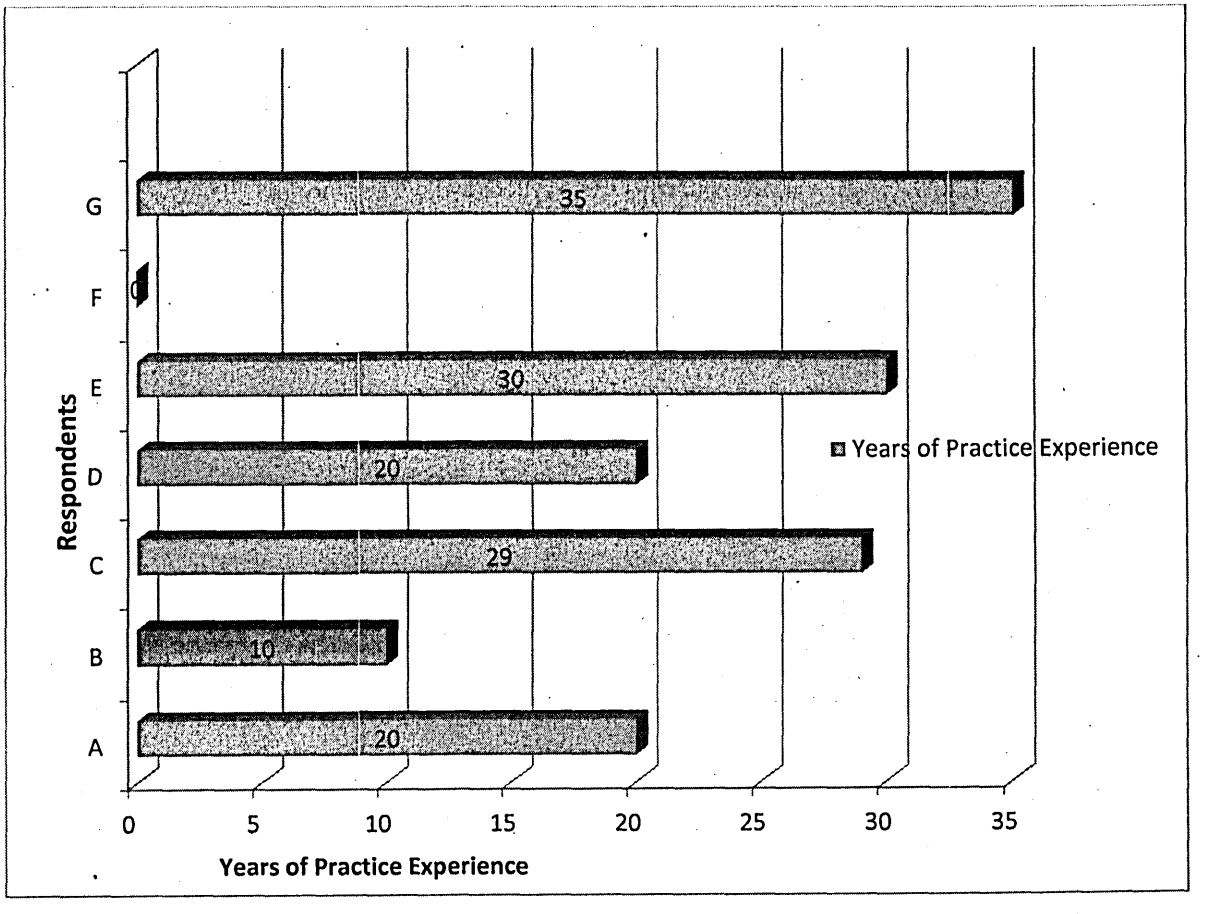

Figure 6.1: Chart illustrating interview enquiry participants practice experience

From figure 6.1 above, is evident that the selected stakeholders for the qualitative interview have varied years of experience in the industry; ranging from nil year for participant 'F' who is a youth (student), and was selected to represent the interest of the youths who are major a focus of the research.

The practice experience of other participants in the interview range from 10 to 35 years within the Nigerian construction and building industry. The wide spread of the years of experience affords elicitation of data related to happenings in the area of crafts skills training (CST) in the Nigerian construction sector over an appreciable period of time. This in turns facilitated the gathering of information on happenings concerning CST both in the past and present times.

Table 6.1: Profile Details of Interview Participants

Interviewee Code	Professional Practice	Training Background	Practice Experience (yrs)	Highest Education Qualification	Status
A	Vocational Crafts Training	Carpentry Crafts	20	BSc Vocational	Vocational Crafts Trainer
B	Socio-Economic Research	Urban and Regional Planning	10	HND	Construction industry Social Researcher
C	Technical Teachers' Education	Civil Engineering	29	PhD	Technical/Vocational Teachers' Training Administrator
D	Construction Management	Building	20	MSc	Industry Practitioner
E	Project Management	Quantity Surveying	30	PhD	Industry Practitioner
F	Building Trainee	Student	nil	SSSC	Youth/under-graduate student
G	Policy and Strategic Planning	Building	35	PhD	Policy Planner/Adviser

Table 6.1 shows additional information on the profiles of the interview participants. The Table, in addition to the years of practice experiences, reveals the training backgrounds, professional practice areas, educational qualifications and present status of the interview participants. The professional disciplines and practice of the participants in the study cut-across core construction and building industry professions involved with the actual building production process and have implications for eliciting cogent data on issues germane to CST.

The practice areas, which include Vocational Craft Skills Training, Socio-Economic Researching, Technical Teachers' Education, Construction/Project Management and Policy and Strategic Planning; provided a wide-ranged experiences in the industry which facilitated the gathering of salient, broad-based and balanced information helpful in addressing the ultimate goal of the study, and provides adequate answers to the research questions.

In the same token, the current status and educational qualifications of the selected participants reveals that they are of reputable status and standing that affords the insight into the problems and challenges of both training and practice in the Nigerian construction industry. The qualitative interview participants' selection formed a group of 'mixed-status' personalities ranging from Trainee, Trainer, VST Teachers' Trainer, Industry's Practitioners, Construction Industry Social Researcher, and Policy issues adviser and strategic planner.

6.3.1 Methods of Data Collection

The main technique for collecting data from the qualitative enquiry participants was through semi-structured interviews. The choice of semi-structure interview for the qualitative enquiry was informed by the views of Smith & Bowers-Brown (2010); Punch (2005); Gillham (2004); and Rapley (2004); premised on the assertion that most qualitative researches embrace the characteristics of flexibility and fluidity of semi-structured interviewing as enhancing the validity of the research investigation as against the structured questionnaire (Bryman, 2008). This approach to qualitative data collection offers the facility to probing of the answers, seeking clarifications and for elaboration in such a manner which allows for the recording of qualitative information in a standardised format. Semi-structured interviews are also found to be very useful in complementing other data collection methods (Gillham, 2004; Bryman, 2008).

The design of the research instrument was also guided by the views of (Miller and Glassner, 2011) which inform that interviews reveal evidence of the nature of the phenomena under investigation, including the contexts and situations in which it emerges. Interviews aimed at obtaining factual information and candid opinions through descriptive data; interview questions are adopted within the typologies or themes drawn from the quantitative research findings. The challenge lies in extracting information as directly as possible, without contaminating it (Holstein and Gubrium, 2011).

Necessary ethical issues were accorded due considerations throughout the enquiry process. Consent of each of the participants was sought and obtained through prior telephone communications and e-mail. The purpose and intention of the interview was also clearly explained to each of the participants; they were given the liberty to opt-out of the survey if they were no longer willing to continue. They also consented to further contacts should it be deemed necessary and follow-up interviews were conducted with some of the participants and other stakeholders to clarify issues and seek relevant additional information.

The interviews were conducted through telephone and recorded using Philips LFH9375 Digital Voice Recorder connected to the telephone box. The interview guide designed and adopted for the interview is as depicted in Appendix 'B'.

Table 6.1 above shows the profiles of the selected stakeholders for the interview, with regards to; training background, professional practice area, highest educational qualification, present status, and years of experience in the construction industry. The information from the Table reveals that the participants' trainings and practice areas cut across a wide area of the industry; the experiences were vast and varied, and the representations were diverse. These phenomena, as discussed above, were very relevant and important for eliciting necessary and varied opinions that aided the achievement of the research goal and provided answers to the research questions.

6.3.2 Piloting the Qualitative Enquiry

Piloting the qualitative data collection instrument is very vital in ascertaining its relevance and capability of adequately capturing the necessary data for the achievement of the study objectives and providing answers to the research questions. It also helps to ensure clarity and practicality of the qualitative interview design. The collective views of Gillham (2004); Bryman (2008); Neuman (2006); and Leman (2010) were drawn upon as guide to the piloting process. Two different parties were involved in the process, with the view to refining the questions and the interview process prior to the actual interview. The initial phase of the piloting involved discussing the interview framework and the proposed respondents' categories with senior academic and a building industry professional; comments and observations were noted and reflected in the design of the final interview guide and choice of respondents. The second phase of the piloting involved the conduct of

a mock interview with a fellow construction management researcher. Comments and reactions during the process served as a valuable feedback in the fine-tuning of the interview questions and were taken on-board in the actual conduct of the qualitative interview.

6.3.3 Qualitative Data Analysis Method

The first stage in the processing of the data gathered through the qualitative interviews was the transcription of the recorded data into Microsoft Word Data. The transcription was painstakingly conducted to ensure correctness and comprehensiveness of the process. The data were formatted and adequately coded to ensure that the names and relevant identities of the respondents were not reflected in the final report. The data was analysed under emerging themes from quantitative survey analysis (see chapter 5), and from literature.

The emerging qualitative data were adequately coded to facilitate the identification of patterns and comprehensive exploration during the data analysis process. Coding in qualitative research, in its simplest sense, is a way of classifying and the 'tagging' text with codes, or of indexing it, in order to facilitate later retrieval (Ryan & Bernard, 2000; Bazeley, 2011). It helps the text to be viewed in categories as well as by source; thus simplifying contextualization and assists the researcher to move from document analysis to theorizing (Bazeley, 2011). Coding is a way of linking data to ideas and from ideas back to supporting data; and the linking facilitates data retention rather than data reduction, it also makes patterns of association between codes to become apparent (Richards, 2005; Richards & Morse, 2007; Bazeley, 2011).

The primary goal of qualitative data analysis is to examine patterns of similarities and differences across cases or categories and try to come to term with their diversity; analysis is also crucial to the evaluation and interpretation of data and articulation of coherent story of what is believed to be the problems (Leman, 2010; Gillham , 2004). In order to effectively achieve the foregoing, the emerging patterns from the data are presented under various themes and sub-themes in the following section of the report.

6.3.3.1 Crafts Training methods/approaches to CST (past and present training methods)

The training of construction related craftsmen is very vital to infrastructural and overall economic development of the Nigerian nation. The verification of the methods of CST that have been in use and their relevance and effectiveness in developing the needed skilled crafts people in the past might provide necessary insights and guidance to the development of crafts training framework that could address the present CST malaise. On the subject of going down the history lane to identifying the CST methods in the Nigerian construction sector in the past and present times; Respondent 'F' explained: *"there was the apprenticeship which is informal in the past; that is the method of learning the trade from a master craftsman and going along with the boss until the trainee master the trade to the point he can become independent and competent enough to practice the trade on his own".* Respondent 'B' aired similar opinion by saying: *"the most common methods for craft-skills training in the past were through the informal apprenticeships".* On this subject of identifying CST methods common for providing needed skilled Tradesmen and women for the construction sector in Nigeria, Respondent 'C' has this to say "*the apprenticeship method where a trainee served under a master and watched him perform until himself gradually acquires the understanding of practising the craft independently, the informal apprenticeship training; that is the first and most common method.* The above stated views were supported by Respondent 'G' by simply affirming the *"informal apprenticeship crafts training"* as the most well known and common past method that have been in use for the training of construction related crafts in the Nigerian construction sector.

Confirmation was also sought on the alternative CST route or strategy which has been in use, and found to be effective in the past and could be modified or improved upon and adopted in the development of construction related CST framework. Respondent 'G' asserts *"formal route through the trade centres"* as the major alternative CST method apart from the informal apprenticeship training route. On this issue Respondent 'E' explained: *"the other method that was effective was the TCs that we had in Nigeria, Trade centres and Technical schools; most especially technical schools".* Respondent 'B' opinion on the alternative CST route in Nigeria was simply *"the other method is the Technical Schools".* Respondent 'D' elaborated on the views of other respondents by saying *"apart from the apprentice training methods, in the past there use to be functional Technical schools that produced skilled craftsmen, but the technical schools have been eroded now".* He went further to explain that

"some of the colleges of technology also use to offer certificate courses that produced craftsmen"; and that *"craftspeople who trained either locally or formally also use to undergo trade-testing to certify their competencies,* and *"all those were effective ways for producing craftsmen, but they are no more effective as they use to be".* Here, Respondent who 'D' is an industry practitioner of twenty years standing raised as issue of non-effectiveness, in the current sense, of the methods which were somewhat adjudged to be effective in the training of tradesmen in the past. The views of other respondents on the effectiveness of the past training strategies in the present context were in line with Respondent 'D's opinion. On this Respondent 'E' opined *"but most of the then technical schools are now diverting into preparing students for the JAMB examinations like secondary schools, preparing students for further or university education.* He further laments that *"with the ideas of converting TCs to STCs, is like they are killing the categories of craftsmen from the training fields".* Respondent 'B' explained the reason why the TCs training route is no more as effective for CST as it was formerly by saying that *"the Technical schools of today, they are not even well funded; those trainees who attend the schools and who are serious with learning the trades still have to get themselves involved with the informal apprenticeship training."* It is not only the formal route of CST that has its' effectiveness questionable in the present context, the informal route has also lost on the effectiveness rating.

The emerging views of the qualitative interview participants on the common CST methods for producing craftsmen for the Nigerian construction industry seem to identify the informal and the formal apprenticeship training methods. The two methods are faced with diverse problems that make them ineffective in the training of skilled crafts people in the present era.

6.3.3.2 Problems contending against effective CST in Nigeria

Identification of the particular problems militating against the effectiveness of CST is crucial to proffering possible solutions towards addressing the malaise. CST in Nigeria construction sector is without doubt faced with daunting problems that made it in-effective in producing needed tradesmen in sufficient quantity and quality to ease the crafts skills shortages in the sector. Some of the interview participants identified some of the problems which have to be dealt with if CST is to achieve the goal of producing competent and

confident craftsmen and women in Nigeria. Respondent 'F' who is a student and a youth said *"one of the problem, you know, is the way the training is been done in Nigeria, there is no serious commitment to training on the part of both the government and the construction industry.* Respondent 'A' who is a CST practitioner explained that *"most of the equipments in the training schools are obsolete, when trainees are sent for industrial attachment in companies; even most of the lecturers have not even seen the modern equipments the trainees will be exposed to".* He explained further that *"another problem is funding, and it is only the construction industry role-players who could help, they have the capacities to help purchase these modern machines for the training schools".* Respondent 'D' supported the observation by listing *"funding, lack of training facilities and equipment and lack of cooperation from the construction companies in the area of training.* From his own experience and research efforts in the construction industry, Respondent 'B' identified some of the problems confronting CST in Nigeria to include: *"non-availability of training centres and draught of competent and seasoned training instructors, there is also the problems of wrong attitude to work; even the carpentry and welding workshops that use to be on our streets in those days where apprentices were trained are no longer available now".* Respondent 'C' viewed the CST problems from the angle of how it affects the products of his institutions and those of other similar institutions engaged with the training of CST trainers. In his words *"one of the major problems is that many of our trainees are having difficulties with getting placements for their SIWES to acquire practical-on-the-job work experience, the construction companies, especially the multinational firms are not cooperating in offering such placements to our students; the relationship between the industry and VTIs or colleges are not as cordial as it is suppose to be".* Apart from the problems identified by some of the respondents above, there are other policy related factors acting against effective CST in Nigeria and Respondent 'G' looked at the militating factors against CST from the policy point of view; he asserted that *"training responsibility is not assigned to any of the stakeholders, hence nobody can be held responsible for its failure, no organization is responsible for construction crafts training funding and non can be held liable for its poor-funding; and as long as the issues of crafts training is generalized and responsibilities are not specifically assigned, it will be very difficult to make a head way on the issue of CST".*

Data gathered through the open-ended question parts of the questionnaire survey also revealed salient information concerning problems confronting CST in Nigeria. Some of the

respondents that expressed their views on it have the following to say: *"misplaced priority on the part of successive government contributed to the non-effectiveness of TVE and CST in the country; poor funding is the most critical problem of TVET, other problems can be adequately linked to it; sometimes there is misappropriation of funds by the authorities in charge of implementing vocational technical education programmes; funding is too poor, as a result students are made to but materials such as nails and wood for their practical training".* Other comments on CST problems from the respondents include: *"poor remuneration of skilled craft people in the construction industry is a major problem; trade tests for certifying skill levels are no more reliable and progression in the Nigerian construction crafts careers is not tied level of competence.*

From the foregoing views expressed by the various respondents, it is evident that there are many factors militating against effective CST and any proposal towards improving on the effectiveness of CST in the country must take cognizance of these highlighted problems in order to ensure effectiveness.

6.3.3.3 Effects of identified problems on Crafts practice in Nigerian construction industry

The adverse effects of the above mentioned skills training problems are currently evident on crafts practice in Nigerian construction industry and has implication for quality of craftsmen's work output and on the quantity of craftspeople been produced for the sector. Some of the survey participants commented on the intensity of the CST problems and the implication for the Nigerian construction sector, one respondent observed that *"the quality/standard of skill is low, this is as a result of many people not willing to be craftsmen and women; this can be attributable to poor working conditions and remunerations in the sector. It is a very serious case which will affect the economy adversely, the number of craftsmen and women are very few to the extent that costs of hiring skilled workers for a day's job are very exorbitant".* Another respondent re-emphasized in support of the above view by commenting that *"since people are not willing to acquire skills the number of skilled tradesmen supplied is not enough; the players in the industry are already looking elsewhere, such as neighbouring countries to import crafts workers".*

The CST problems affects not only the number of craftsmen produced but the technical contents of the training, Respondent 'A' explained that *"Nigerian craftsmen have little knowledge of quality control of the three stages of production: raw material, processing and final product."* These observations reflect the effects of the problems confronting CST on the quantity and quality of crafts-people produced in Nigeria; there is need to adequately address the identified problems so that the negative effects on construction craft practice will be adequately stemmed.

6.3.3.4 Approaches to effective CST and development in the construction sector

It is not enough, just identifying the factors militating against effective CST; there is need to explore available options and strategies that could be adopted in tackling or circumventing the problems so as to render CST effective in producing the needed competent skilled craftspeople and able to address the current shortages faced by the Nigerian construction sector among these cadre of skilled work-group. Some of the participants suggested relevant strategies for effective crafts skills training and development. Respondent 'D' has this to say on the issue:*"I think the government has a critical and crucial role to play in this, so also are the professional bodies; number now that the government is preaching about local content in the industrial sector. The government should establish more training centres for the training of construction crafts, the NDE should focus on arranging skills training for youths rather than embarking on non-skill ventures in their poverty alleviation projects and professional bodies in the building industry should collaborate with the construction private sector in establishing viable training schools that will be well equipped and adequately staffed to train and produce competent crafts-people".* Respondent 'C' had similar suggestion, he said *"the government should be serious about VTE; they've bee making promises and policies but they are not living-up to them".* He added that *"at least every local government should have a craft training centre, even, vocational training sections can be created in the secondary schools for the purpose of training students on vocational skills";* according to him: *"the Lagos state government for example is trying in that regards".* Respondent 'E' emphatically stated that: *"with what is on ground now, it might not be possible to stop NABTEB from preparing students for further education, but there should be another route for the training of craftsmen; where students will be made to realise that this is a terminal programme. If the government and*

construction industry can bring about such innovation, it will help greatly in the training of skilled crafts manpower needed by the construction industry".

The ideas presented by Respondent 'A' on the approach that could be adopted to make CST effective was put in a rather logical form as follows: *"the industry should have specific training for specific people and for specific jobs, and not like we are having jack of all trades and master of none; craftsmen should be known for the skills they have acquired. if the construction industry can recruit un-skilled people, give them the expected goals to be attained in the training, make them earn while they learn, monitor them to ensure that they acquire and obtain the set objectives and device a method for obtaining feedback from the industry on the trainees' performance after graduation; then the end result will be best for the construction industry and the country as a whole".*

Craftmen's initial training to acquire basic vocational skills is not enough, there is need for continuous skills development or up-skilling, this will enable the craftsmen to be up-to-date and stand-up to the challenges of new innovations in materials and technology in the industry. Some of the interview respondents expressed their opinions when asked to comment on strategies for crafts-skills developments after the initial training. Respondent 'A' explained *"the construction companies, whether expatriate or indigenous should put policies in place to ensure that craftsmen are elevated and rise on their career paths over time, they should be given the opportunities for up-skilling along with good welfare packages as it is obtainable in the civil service. By so doing they will be able to retain experienced workforce and others will be encouraged and motivated to want to belong and get trained, when they know that there is job security, dignity and career advancement".*

On the subject of continuous skills development Respondent 'D' said *"continuous professional development (CPD) schemes should be extended to the craftsmen, they should undergo regular trainings on modern tools, equipments and methods; the professional bodies will have to champion such skills development efforts".* Respondent 'G' supported the views expressed by other respondents, he reiterated *"after the initial training, continuous career development will be necessary and this can be monitored and ensured through carrying out regular training needs analysis (TNA), both for the crafts schemes' graduates and also for the trainers or instructors. There will also be need for appropriate research and development (R&D) to identify new innovations in materials and technologies in the sector.* In order to ensure effective skills development for construction crafts people, he

added that *"need for up-skilling or multi-skilling by training craftsmen on new skills different from their basic crafts can also be considered; craftsmen can also be given opportunities to attend refresher courses through attendance of conferences and workshops as much as is practicable".*

The views expressed by the interview respondents are very revealing and could serve as a pointer in developing a framework for adequately addressing craftsmen's skills training and development in the Nigerian construction sector.

6.3.3.5 Factors discouraging youth from showing interest in acquiring construction related skills

Youth population is a very potent asset in the development of any nation and their development and empowerment are a very vital phenomenon in the building of human capital for national development. Equipping the youth generation with employable crafts-skills will enable the young generation to avoid poverty, become economically independent, lead better and more fulfilling life. The human capital represented by youth, if well articulated and developed; could be a cogent determinant of long term socio-economic development for a nation. The Nigerian nation has a considerable youth population, most of who are without employable skills; but, rather thank think of acquiring vocational skills most of these youth engage in petty trading, crimes, or other non-vocational ventures. Some of them who think about acquiring skills would think in line of IT skills rather than construction skills. The interview respondents explained salient points on why the youth in Nigeria are not favourably disposed to acquiring construction related skills.

In the opinion of Respondent 'F' who is a youth *"skilled craftsmen are not been paid well, there is no money in the trades and that discourages the youth from getting into learning or acquiring these skills; the contractors get the lion share while the actual people doing the work on the construction sites are paid poorly: you know, any job that doesn't pay in Nigeria is useless; so the major reason for youth not showing interest is due to financial or reward factor. Another relevant factor is the lack of respect, recognition and dignity; hence the youths view construction work as degrading and viewed as vocations for those that does not have better choices. Artisans are given little or no recognition in this country".* Apart from the poor remuneration and poor image problems, he also commented on the nature of

crafts work in Nigeria; according to him: *"also the manual labour input in the various trades is discouraging, the trades seem too difficult to practice and the youth are scared of them. There is need to bring-in the use of machines in the training and need for mechanization of the practice of the trades by making machines available and affordable for the craftsmen on graduation; when the youth realize that they can practice the trades with modern equipment and machines they will be interested in getting into the trades".* Supporting the above views, Respondent 'A' highlighted some of the reasons youth seem not to be showing interest in acquiring construction related crafts skills in Nigeria. He said: *'the major problems are - too much emphasis on general secular education, lack of adequate form for mobilising youth for skills acquisition, poor remuneration".* Poor image of construction craft careers also featured in his explanation, he said *"craftsmen are been rated as second class citizens, they are not accorded recognition and respected the way it ought to have been, even the parents don't want their children and wards to train as craftsmen, it you tell a parent that your child is been considered for admission in Technical school they will tell you it is impossible; even lecturers in those TCs will tell you that my son cannot come here. It is a general belief that craftsmanship is for people who could not do well in normal education and as if vocational training is reserved for the drop-outs".* The observations of Respondent 'B' was also similar, he said: *"the fact is that people are no longer willing to do those types of jobs anymore because there is no money in them, also because of the low prestige attached to those jobs compared with other types of jobs; people are no more willing to be associated with humiliating jobs. There is no dignity of labour, even the industry that the craftsmen belong to do not recognize them as been part of the industry, they are treated as outcasts and unwanted even in the industry they belong to; as a result people prefer to find other things to do. People are more interested in skills that are not so tedious and are commercially lucrative in nature, such like in IT world".*

Respondent 'B' who is a construction industry socio-economic researcher drew on his findings in this area by explaining that: *"even the government is not encouraging skills acquisition, imagine the government trying to do something on poverty alleviation and the only thing they can think about is buying 'Okada' (motor-cycle) to youth for commercial purposes; is that a way to alleviate poverty"?*

Apart from touching on some of the problems mentioned by other respondents as analyzed above, Respondent 'D' viewed the informal approach to CST as a one of the factors

discouraging the youth of this present age from considering acquiring construction related trades; he explained that *"apprenticeship schemes, especially the informal types which use to be the common method for skills acquisition I seen be the youth as very hard and difficult; and of course it is. Because an apprentice that sign-up with a master to learn a trade for 5 years ends up spending the good part the contracted years to do other things such as going to wash cloths and such like at the house of the master".*

Respondent 'G' in his comment on this issue said: *"Nigerian youths are not thinking of acquiring construction skills because - everybody wants to go to the university and as a result of the desperation, candidates are engaging in all sorts of examination odds to ensure that they pass the JAMB examinations; the social and psychological issues of taking to crafts as a career are also militating against the interest of the youth".* He corroborated the views of the other respondents by adding: *"wages problem is also a major factor, construction craftsmen are not well paid for their hard works, the periods of training are also in most cases too long and the policy issues are also there".*

From the responses analyzed above it is evident that a number of factors are currently militating against the interests of Nigerian youths and preventing them from choosing crafts as a career. Prominent among these are: poor remuneration, poor image of the crafts career, crude nature of craft practice, poor training conditions, low commitment of the construction sector private sector in crafts training and insufficient effort on part of the government in the area of youth motivation and mobilization.

6.3.3.6 Strategies for motivating and mobilising youth for construction industry related skills.

Appropriate strategies needs to be put in place to secure and sustain the interests of youths if the nation is to solve the crafts skills shortage problem in the construction sector. Failure to do so will be robbing the nation of potential crafts-crews that could contribute to the growth of the construction sector and the national economy as a whole. Respondents to the qualitative survey were asked about their opinions on possible strategies that could be adopted for motivating and mobilising the younger generation in the nation for construction related skills training. Some of the participants that responded to the question on possible approaches to youth motivation and mobilization for construction related crafts-skills

acquisition suggested the following: *"de-emphasize certificate without skill, increase wages of craftsmen, this will motivate Nigerian youth in taking-up interest in skills acquisition".* Another respondent wrote something similar to the above: *"when we de-emphasize non-skilled general education and accord skill acquisition a place of prominence in the society, the youth will show interest".* This is under scoring the need to lay less emphasis on secular/general education in the national system of education and accord the right recognition to TVE. Issues on career guidance and counselling also featured in the suggestion. One respondent wrote: *"if skills instruction and career guidance and counselling could be introduced and made mandatory both at the JSS and SSS, it will equip the youth adequately for the task ahead and open their eyes to the benefits inherent in skills acquisition."* Financial reward or support during skills training was another strategy suggested for youth motivation; one respondent, (a youth) said: *"most youth like to be independent, it will be a good attraction if skills learners could be made to earn while they lean; this will increase their interests in skills acquisition".* Specific steps would have to be taken to properly mobilize the youth generation in Nigeria for skills acquisition especially in the construction industry. One of the respondents advocated the need to device forum for reaching-out to the youth, he suggested that: *"skills enhancement forum could be organized at local government levels to create awareness on the essence and importance of skills and craftsmanship to the society; with the view to motivating and encouraging the youth to take to skills acquisition".*

Apart from the data gathered through the open-ended part of the questionnaire survey on this subject, the participants in the qualitative interview also gave their views on methods by which youths' interests could be secured for skills acquisition. Respondent 'F' who is a youth supported the idea of adequately educating the youth on the gains of becoming skilled in a construction related craft. He explained: *"the youth need to be told and be well informed about the opportunities available in skills acquisition, when people are aware of the privileges and opportunities awaiting them in becoming self employed and even becoming employers through skills acquisition; they will be willing to get involved".* Furthermore, he viewed the need for ensuring that crafts-graduates are well-established after graduation as a relevant tool for youth motivation. According to him, *"there is need also to encourage crafts graduates by establishing them on graduation through provisions of tools, equipments and machines and finances for them to establish their own workshops and firms".*

Respondent 'A' supported this idea by suggesting that *"trained craftsmen also need to be empowered to be able to practice their trades after training. The situation on ground presently is that the rained craftsmen are made subservient to the rich men in the society; who are not even skilled men or women but are 'loaded' capital wise and have the means to establish and run workshops and get big contracts and they pay peanuts to the craftsmen why they make huge profits."* He concluded by explaining that: *"if trained craftsmen are empowered to practice their trades after training, people will be encouraged to go into the trades".*

Respondent 'E' did not only suggest good wage scales and rating for trained craftsmen as a method for attracting youths into skills acquisition, he considered offering of scholarships to crafts-skills trainees by saying: *"if Nigerian government can give incentives such as scholarships to those willing to get trained in construction crafts skills like some northern states governments give to those studying sciences in secondary and tertiary institutions; it will go a long way in attracting the youths into crafts."*

Talking from experience acquired from his construction industry research findings, Respondent 'B' was pragmatic in his submission on this subject of motivating the youth for skills acquisition. He explained *"the strategies I will recommend are: create an environment that will re-orientate the youth by devising means of adding value to the craftsmanship profession; as at now the field is made to look like it is meant for the illiterates and the down-trodden. The government should get serious with re-orientating the youth and arrange skills trainings in dignified forms - by aligning with reputable construction firms to organize skills training for the youth. The government should partner with the private sector in the construction industry to train the youth and create a way of getting them gainfully employed after the training by giving them placements with companies that will employ them. Many construction companies employ the craftsmen as 'casual workers,' this indicates that they are not part of the company. This arrangements should change so that craftsmen will be given permanent employments and be made to feel as been part of the society; if things like these are put in place, youth will be motivated and develop interests in acquiring construction related skills".*

The need to adequately fund CST, award scholarships to willing youths to acquire craft skills, and make the apprentices earn while they learn in order to be able to support themselves economically also featured in the opinions advanced by Respondent 'C'

Respondent 'D' in support of some of the points raised by other respondents as analyzed above said *"the government, construction sector and professional bodies need to create awareness to inform the youth generation and the entire public about the importance and relevance of the construction industry to national development, and that the construction industry is a very fascinating, interesting and growing industry; there is also a need to simplify crafts training by properly funding VET centres, procuring modern tools and equipments for training and encouraging the trainees by making them earn while they learn.*

It is evident from the various explanations given by the qualitative enquiry participants that the issue of crafts skill training and youth mobilization cannot be left for the government alone, the role players in the construction sector has vital responsibilities in this regard.

The following sections (6.3.3.7 and 6.3.3.8) focuses on the suggestions given by respondents on avenues for mobilising youths and the specific roles the construction industry organized private sector could play in making CST functional and effective in producing needed competent and confident craftsmen and women for the Nigerian construction industry.

6.3.3.7 Avenues for recruiting youth for skills training

As confirmed in chapter 5 and in the explanations from the interview respondents as analyzed above, there are various reasons for youth's lack of interest in skills acquisition; various strategies could also be adopted to positively influence the situation and to secure the interests of the youth population in considering skill acquisition as a viable option and path out of poverty and joblessness. However it is imperative to consider avenues that could be explored to effectively reach-out to these youths. The quantitative data analysis confirmed some possible avenues while some of the responses to the qualitative interview also suggested possible ways of getting across to the youth for the purpose of awareness creation and recruitment for training. The government and the construction industry have to form a common from for the purpose of reaching out to the youth. Respondent 'F' (a youth) said; *"the governments and the construction industry need to get to the grass-root to get to the youth, they are in the religious places and youth clubs in the various local governments in the country. Awareness programmes could be organized for them in suitable and conducive environments through these churches, mosques and clubs to tell*

them about what they stand to gain by getting into skills training". Other opinions expressed by the respondents to the qualitative enquiry indicated that the junior and senior secondary schools could also be effective avenues to mobilize and recruit youth for skills training. One of the respondents explained; *"to catch the youth population in their domain at the local government levels and through youth associations and clubs looks best, this can be accomplished with the support of the relevant professional bodies organizing forums to educate and get qualified youths registered and enlisted for relevant trades in the construction skills training centres under the monitoring and supervision of the professional bodies.* These explanations underscore the important roles the construction industry needs to play in making CST effective in Nigeria.

6.3.3.8 Roles of construction industry organized private sector in CST

Findings from both enquiries suggested that the construction industry organized private sector and allied professional bodies in the industry have to play leading roles in ensuring the effectiveness of CST in the country. Since the industry utilizes the services of the craftsmen, they need to champion the course of mobilizing, recruiting, organizing, monitoring, funding and improving on CST. The lack of commitment of the various role-players in the industry was actually found to be having a negative impact on CST; Respondent 'A' acknowledges this fact by saying that; *"the non-participation of the private sector is actually affecting construction industry skills training and development, because they know what standards are required and what areas of skills need to be developed to give the sector the required growth".* In suggesting how the private sector in the industry can contribute to construction CST he added that; *"I have always been of the opinion that training should be left in the hands of the construction industry because they have the capacity and make use of all the equipments needed for effective training, let training be left in their hands, let them program how training for the industry could be effectively organized to meet the skilled crafts needs of the sector.*

The efforts of ensuring the effectiveness of construction related CST needs to be collaborative in order to achieve the needed results, both the government and the various role-players in the sector will have to get committed to playing their respective roles. Respondent 'F' has this to say concerning assigning responsibilities; *"we need to get things*

right, the government seems not to take this training issues very seriously; I am of the opinion that the construction industry private sector would be ready to play their roles but the government is not involving them in the training task. If the government begin to take the matter seriously and make it mandatory for those who want to practice in Nigeria to get involved with craftsmen's training by enforcing that all construction companies registered to practice in the country either contribute a certain percentage of profit after tax annually towards training, or take up a certain number of trainees annually; I am sure the sector will wake up to their responsibilities".

The professional bodies/registration boards also have vital roles to play in construction related CST in Nigeria, they can collaborate with the private sector to organize and supervise crafts training programmes. Respondent 'B' supported the innovation by saying that; *"the professional bodies' councils can combine with the organised construction private sector and the government to organize crafts skills training, the construction companies need to have their own training centres spread all over to be closer to the people for the training of their own workers; there should be training schools for new employees and training facilities for old workers to boost their knowledge and improve their skills."*

The construction industry organized private sector and the allied construction professional bodies can also make immense contributions to CST in the area of creating public awareness; Respondent 'C' was of the opinion that *"the professional bodies and other role-players in the construction industry should sensitize the public to make them to realize the relevance and importance of construction skills and trades to the Nigerian economy, they should also make the public realize the importance of shelter; because as the population of the country is increasing, the housing need is also increasing and more crafts people will be needed for the realization of the housing needs of the nation".* This view was supported by Respondent 'B' who explained that; *"the private sector can also help in the area of re-orientating the people in form of public awareness, so that people can change their attitudes and thinking towards construction related crafts-works and crafts-people; the way other industries or sectors promote their industries over the media, the construction industry can also do the same to create awareness and secure the interests of people in getting to the trades.*

Other areas through which the construction private sector can make useful input in CST include; curriculum design, testing, certification and provision of feed-back on crafts

graduates' performances. They can also make input in the area of R&D that can lead to appropriate TNA for the purpose of up-skilling the practising craftsmen and women in the Nigerian construction sector. Some of the respondents gave relevant suggestions on these relevant areas. For instance, Respondent 'C' speaking on possible areas of input of the construction private sector said; *"the construction industry will have to play a major role, think of the area of giving adequate feed back about the performance of crafts training schools' graduates, without them you can't get such needed feedback from the field.* He also opined that they can make input in the area of curriculum planning and design, according to him; *"they also have to be involved with the designing of the curriculum so that they will be fully involved in the training, and also be ready to provide necessary supports for the practical aspect or work experience during the training; by so doing the graduates will be able to fit in to the field of work and not require additional training before they are employed".* The situation at present time is that the industry has to provide further and intensive practical trainings for vocational training institutes' graduates before they can be made employable.

On the issue of administration and provision of other necessary logistics for construction related CST, Respondent 'G' viewed the construction industry organized private sector as a major stakeholder; he said *"the sector has a very unique role to play in any frame work that is to effectively address crafts training; because they will be the main beneficiary at the end of the day. The sector needs to bear the touch and blaze the trail in crafts training matter and make necessary input both in funding and in the overall administration of the training schemes".*

The only credible means of testing and certifying Tradesmen and women in Nigeria over the years has been the Crafts Trade Tests (CTT) grading, solely organized by the Ministry of Labour and Productivity. The CTT has however been eroded in the testing and certification of crafts' people and the construction industry organized private sector can make a positive impact in the area of testing or examination and certification of the CST graduates.

Respondent 'G' from his wealth of experience in the construction industry supported this observation; he said *"for example, the CTT organized by the ministry of labour and productivity has been discredited because the candidates engage in all sorts of anomalies to pass the tests and obtain the certificates when they are not skill-fully qualified for it, the non-commitment of the construction industry private sector is evident in the breakdown of*

crafts training and development in the nation". On the subject of testing and certifying construction crafts graduates, Respondent 'C' put it more clearly by saying that; *"the construction sector must get involved with curriculum design, assistance with practical training and certifying that the trainees have trained with them to acquire the needed practical site work experience".*

6.3.3.9 Assessment of NPE effectiveness in addressing construction industry related CST issues in Nigeria.

The qualitative enquiry also sought to draw the opinions of respondents on the effectiveness of the National policy on Education in addressing construction sector's crafts skills training issues. The NPE is the policy document of the FGN on the educational system in the country and addresses the mode of education from pre-primary through to tertiary education in the country. The identified problem with the NPE is that the policy statement contained in the document on TVE seems rather in 'creed' than in 'deed', hence the goal of the nation for VTE in supplying the industrial sectors with needed skilled crafts-crew is not been achieved. On the adequacy of the NPE in addressing construction related CST in Nigeria, the comments of Respondent 'A' was; *"the NPE has failed us in the construction industry, I am very sorry to say. The planners had good intension but the implementation is faulty and in-effective. TVE as designed in the NPE was meant to be skilled based, but presently it is not skilled-based anymore".* The opinion of Respondent 'C' on the NPE was similar, according to him; *"what is stated in the National Policy on Education is ok, the problem is with the implementation. The contents of the NPE have not been implemented as should be; that is why we are not getting the expected result.* Since the NPE is found to be somewhat deficient in effectively addressing the training of craftsmen, especially in the training and production of competent, confident and employable Tradesmen and women for the construction industry; it is therefore very necessary to device a framework that could adequately address the construction sector's skilled crafts' training needs. Section 6.3.10 present the analysis of the opinions elicited from respondents to the qualitative interview on the relevance of formulating a training framework that will specifically address craftsmens' training in the construction sector.

6.3.3.10 Relevance of designing a framework to addressing CST in Nigerian construction sector

The issue confirming the relevance of formulation of a training framework that will address construction crafts skills training becomes pertinent in the light of the identified problems as revealed through the quantitative survey analysis (see chapter 5), and the qualitative enquiry analyses presented in the various sections above. A Framework is a hypothetical description of a complex entity or process, it is a basic conceptual structure used to solve or address complex issues. The qualitative enquiry therefore, attempts to sample the opinion of the interview participants on the relevance of designing a framework; tailored to specifically addressing CST and focused at addressing the training of construction Trades in the Nigerian construction sector. Such a framework will need to be specific and comprehensive in dealing with different phases of planning and implementation of Craftsmen's training in order to effectively tackle the construction industry crafts training needs; unlike the NPE which as of now addresses TVE on general or broad terms.

The participants in the interview were asked if they have knowledge of any other training framework in Nigeria that specifically addresses CST apart from the NPE which addresses VTE on a rather general term. The response of Respondent 'A' to the question was *"no, not at all"*. Respondent 'G' said; *"as of now, I know of none that specifically addresses construction crafts training, the NPE has a rather general approach to the subject of producing craftsmen for both industrial and construction sector.* Respondent **'C'** spoke of a recent initiative by the FGN which addressed national educational system generally, but not construction crafts training specifically. According to him *"recently there is a road map on education it is still in line with the National policy on Education; it is printed out as a book, you can buy it; but it is still in line with the National Policy". "It is just the vision of the Education Minister on the ministry's plans towards achieving the national goals on education, it did address vocational education, generally, touching on how they want to implement the World Bank assisted training project with regards to technical education".* This observation underscores the fact that the 'broad' approach of the government to VTE is not meeting the construction sector's CST needs and formulation of a framework that will specifically touch on the various aspects of construction related crafts training will be a step in the right direction.

Respondent 'E' did not discard with the NPE outright, he was of the opinion that the policy document could be looked into with the view to bringing out a road-map to addressing construction sector's crafts training needs. To put it in his own words; *"I am not sure I know of any such framework that focuses on construction crafts training specifically as of now; well, I think the NPE can be looked into and we can bring out something out of it. We may not totally jettison the NPE but we can still take something out of it for this new horizon; we can look into the NPE and have a way of escape and formulate something out of it that will focus on the training of this group of people*". Respondent 'A' supported the idea by saying; *"we'll actually need a separate framework that will squarely address issues of skills training in the construction industry, but the framework has to be within the policy framework".*

Respondent 'C' responded to the question of knowledge of any existing framework that centers on construction skills training by saying that; *"I do not know of any as of now".* He further explained that; *"we need a framework that will address skills training and also touch on feed-back from the field. If there is a means of receiving feed-back from the industry the training institutions will be able to know what improvements need to be made in curricula and in the training provisions. The training institutions need to know if those graduates are able to fit into the industry, if what have been taught meet the sector's needs and whether there are new or modern innovations to be included in the training curricula".* With regards to the NPE he said; *"the NPE is somewhat general in nature, we should think of a framework which will specifically address crafts training in the construction sector; so that the issue of funding, mobilizing, recruiting, training, monitoring, quality control, examining, certification and feed back of construction related crafts skills training could be adequately addressed. It will help in achieving the objectives of producing the needed competent skilled crafts people we are talking about for the industry; ...better than a general policy".*

It is evident from the above discourse that the general consensus of the qualitative enquiry's participants was that the move to formulate a training framework to address CST will be a relevant effort in arresting the nation's construction sector crafts skills shortage malaise.

6.3.3.11 Evaluation of government past strategies in tackling CST problems

The various tiers of government in Nigeria have been making efforts in planning strategies and embarking on reforms geared towards addressing VET in the country. Agencies vested

with responsibilities to address youth unemployment and tackle poverty by empowering youths with employable skills have been formed; one of such agencies is the National Directorate of employment (NDE). Initiatives aimed at eradicating poverty among the citizenry such as the National Poverty Eradication Programme (NAPEP) was embarked upon; with the primary goal of affording unemployed youth opportunities in skills acquisition, so as to become self-employed and self-reliant, create jobs, be economically self-dependent, and contribute to national growth. The NDE floated a scheme tagged National Open Apprenticeship Scheme (NOAS) in pursuant of its mandate for empowering the youth generation with skills; and provide initial capital to encourage self employment; the programme has been adjudged as 'new wine in old wineskins' by some analysts. Similarly, the Youth Empowerment Scheme (YES) embarked upon by NAPEP was tainted with mismanagement, poor implementation and corruption ended-up providing youths with 'KEKE NAPEP' (tri-cycle automobiles) for commercial transportation businesses instead of encouraging youth to acquire skills. Some of the respondents voiced their observations on the effectiveness of some of the past government initiatives. Respondent 'A' said; *"the NDE seem to be making some efforts in the area of skills training, they attach un-employed youth with illiterates master craftsmen who do not have the knowledge of the theoretical principles of what they are doing; they do these mostly in automobile crafts, tailoring and fashion design and the like; the programme is not even well coordinated and in most cases do not include construction crafts.* Respondent 'D' observed that *"those trained by the NDE and given some stipends as loan to start-up on their own ended up diverting the funds into other things, they can't practice the trades because the trainings received did not make them competent enough; the loans granted to them are insufficient to acquire necessary basic tools and equipment to get established and be self employed and there is no enabling environment".*

On NAPEP initiative, Respondent 'B' lamented that; *"it's a pity to say that the government is not serious with the goal of empowering the youth and eradicating poverty; just imagine governments distributing 'Okada' motorcycles to youth to be riding for commercial transportation in the name of poverty eradication, is that how to empower the youth and eradicate poverty in the society"?....."What I think our youth need is empowerment with marketable skills so that they can be useful to themselves and the society at large".*

There are also bodies such as the Education Trust Fund (ETF), Industrial Training Fund (ITF), Petroleum Technology Development Fund (PTDF); and other international organizations assisted programmes like the African Development Bank (ADB), World Bank Assisted projects etc; whose mandate include vocational skills acquisition funding and training. With these well-laid out plans and initiatives, CST should be receiving the needed attention and be effective in producing competent Tradesmen and women for the various sectors of the economy; but the reverse seems to be the case due to poor implementation or shifted focus and misplaced emphasis; hence their influences in promoting crafts-skills acquisition seem glaringly impotent. Respondent 'D' commented that; *"NDE is still trying to arrange trainings but mostly in soft skills like fashion designing and the like, not necessarily in construction skills; ITF...I don't hear much about them these days,...PTF..They are still assisting in the area of funding projects, but, mostly in tertiary training institutions. And the politicians in the House of Representatives have community projects which they mainly directed towards buying 'grinding machines' for selected people in their constituencies; if the efforts are directed at equipping people with skills; much could be achieved within a short period. I think the construction professional bodies and the sector can collaborate with them to channel some of these funding into giving youths in their areas lasting skills for poverty eradication".*

On CST funding Respondent 'G' said in support of the above views; *"when we look at the issue of funding too; ETF seems to focus on university education in their projects. ITF..., you cannot so much identify what they are doing; of course its role centres on the whole of the industrial sector, there will therefore be need for a centralized approach to the funding of construction sector's craft training scheme".*

The various opinions volunteered by the interview enquiry participants, as detailed above points to the fact that if good percentages of the efforts from the various agencies are specifically directed towards CST in the construction sector; the crafts skills training problems in the sector will be adequately addressed.

6.3.3.12 Strategies for effective implementation of construction industry CST in Nigeria.

Any viable approach or innovation that will ensure the effectiveness of CST and adequately address the various challenges presently confronting crafts training and development in Nigerian construction sector will have to be based on practicable and well articulated structure. The existing general approach to crafts skill training has been found from the quantitative analysis (chapter 5), from the qualitative data analysis (as analyzed above), and from literature; not to be effective in meeting the skilled crafts need of the construction sector. The planning, implementation, monitoring, funding, bench-marking, standard or quality control mechanism of construction related CST requires adequate consideration. Modalities for training delivery, testing and certification of the construction sector's crafts training would also demand attention in the light of the existing administrative structure. The qualitative interview featured relevant questions in this regard and the respondents gave their views accordingly. Respondent 'D's explanation on possible strategies for administration and funding was that; *"I think, with the democratic governance on ground in the country, the professional bodies in the construction sector can sponsor bills that will impact positively on crafts training in the construction sector, the government can set up a special fund purposely for crafts training in the in the construction sector, a construction industry development bank can be set up and all companies contribute certain percentage of there profit after tax so that there will be fund in the bank to finance crafts' training in the construction sector".*

The Nigerian Education system has modalities, ministries, boards and other agencies in place for the administration of the general education system; for instance the TCs, STCs, VIEIs, IEIs for the purpose of running VTE programmes. The NBTE is vested with the responsibilities for overseeing the VTE programmes at the various educational levels with the view to ensuring standards, the NABTEB is established to examine and certify vocational and crafts schools' trainees. The snag however, is that the existing structure approaches VTE in general but not construction crafts skills training (CCST) in particular.

Since this study is focusing on CCST, giving thought to the modus operandi for CCST is necessary and mandatory in formulating a functional framework that will effectively address the training and development of construction related crafts. Some of the interview enquiry participants gave relevant suggestions on possible approaches to the administration of

construction CST that will be effective and productive. Respondent 'G' suggested that; *"there us need to re-visit the existing policies and examine if they are been implemented as designed, for example, are the TCs that were established to train crafts skills actually fulfilling those roles? What is NABTEB as an examination body suppose to be doing; is the board discharging the responsibilities in the decree or act of parliament that established it? If the various boards established to administer crafts training are not doing what they should be doing; then they should re-trace their steps and do what they were set up to do".*

Findings from the researches conducted in the course of this study had shown that the various boards have either shifted focus or are giving no attention to the aspect of crafts training. Furthermore, the fact that the construction sector is one of the major economic and development drivers for the nation calls for drastic approach in the organization and management of crafts training in the sector. For instance of training administration, testing and certification of crafts trainees/graduates, Respondent 'B' was of the view that; *"with what is on now, it might not be possible to stop NABTEB for example from providing alternative route from WAEC and NECO for university education aspirants; but I recommend that there should be another route for the training of craftsmen, where the students will be made to realise that this is terminal programme and the graduates are encouraged to improve and develop on the career ladder."* He opined that if the government and the construction industry in Nigeria can bring about such innovation, it will help greatly in the training of skilled crafts manpower for the sector's need. The findings from the questionnaire survey was also in support of creating a unique path different from the present general approach; to specifically address every aspect of construction industry related crafts training considering the importance of the industry to national economic growth and overall development.

6.4. Document Analysis Qualitative Enquiry.

6.4.1 Introduction

This section of the report presents the analysis of Qualitative Data from official documents of the Federal government of Nigeria, and those of relevant agencies of the government charged with the responsibilities for the training and development of crafts skills for the construction and other industrial sectors of the nation. The document analysis in the

section takes a pragmatic approach so as to unravel the problems confronting VET in Nigeria, enhance the achievement of the goals of the study and answer the research questions.

The section opens with the explanation of the purpose and relevance of exploring documentary data in qualitative research and highlighted the possible sources and types of documents for qualitative analysis.

The guiding principles underpinning the choice of documents for analysis and its purposes were discussed; the list of documents and the procedures for analysis of each were also presented.

The ultimate goal of the section is to identify from official documents, the nation's policy statements and arrangements on vocational crafts training; with the view to discovering variants between what is planned and what is practiced as revealed through the literature, quantitative survey and interview enquiry. The analysis in the section also intends to confirm and facilitate the triangulation of the quantitative and interview data on the problems militating against the effectiveness of TVE in producing needed competent and confident crafts people; especially for the construction sector.

The section closes with a summary of findings from the various documents explored.

6.4.2 Documentary Data in Qualitative Enquiry

Documentary data relevant to the accomplishment of the research aim were explored for the purpose of eliciting data that could enhance the formulation of a crafts training framework for effective training and development of crafts skills in the Nigerian construction sector.

Documents, either historical or contemporary, can provide rich data base that are very relevant and useful for social research (Punch, 2005). Official documents are compiled and retained in organizations to present information about various relevant areas of organization interest. The range of documents which might be used by social scientists includes diaries, letters, essays, personal notes, institutional memoranda and reports, biographies and autobiographies, and government pronouncements and proceedings (Punch 2005, Bryman, 2008).

Official documents compiled by either states or organizations, many of which are put in public domain; provides a heterogeneous group of data sources (Bryman, 2008). Nigerian government and other organizational documents such as education policy, mission statements, press releases, annual reports, advertisements and public relations materials among others, were selected for qualitative analysis to corroborate other data collected through questionnaire and interview surveys. Some of the documents selected for exploration are available in printed form while others were sourced from the World Wide Web.

6.4.3 Guiding Principles for choice of Documents for Analysis

The views of (Seale *et al.*, 2004; Punch, 2005; Neuman, 2006; Bryman, 2008; and Silverman, 2011) underpinned the selection of documents, retrieval of relevant data from the World Wide Web and the analysis of documentary materials available for the qualitative enquiry.

In line with the converging views of the above mentioned authors, the criteria of authenticity, credibility, and relevance to the research focus informed the documentary selection and analysis.

Documentary data sources are used for various purposes in social research, some studies depend entirely on documentary data with such data as the focus of the study in their own right. In other types of research documentary data may be collected in conjunction with other data collection methods such as interviews and case studies. When collected in conjunction with other data, documents can be important in triangulation where an intersecting set of different methods and data types are combined in a single study (Punch, 2005).

Documents can be read and preserved so that they are available for analysis by the social researcher; however, the extent of their relevance depends on the adequacy of the chosen document for the phenomena being investigated (Bryman, 2008).

Documentary data sources were considered relevant to this study because such data provide additional facts to reinforce and corroborate the findings from data collected through the

questionnaire survey analysis presented in chapter five of this report; and the findings from the qualitative interview analysis presented in the earlier part of this chapter.

With reference to the research ultimate objective of formulating a framework for the effective training and development of construction related crafts skills in Nigeria, the National Policy of Education (NPE) which is the main official document that addresses the Nation's educational system along with documents relating to selected government agencies connected with the administration of TVE were selected for analysis. The documents selected for analysis are listed in section 6.4.4.

6.4.4 Document selected for Analysis

The following official and organizational documents were selected for contents analyses:

1. National Policy on Education (NPE).
2. National Board for Technical Education (NBTE) documents available on the Board's website.
3. Available documents on Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) from NBTE's website.
4. Documents on Technical Colleges and Science and Technical Colleges from NBTE's website.
5. Documents on the vocational education examination board - The National Business and Technical Examination Board (NABTEB) from NABTEB's website.
6. Relevant documents sourced from Industrial Training Fund (ITF) website
7. Relevant documents sourced from Education Trust Fund (ETF) website
8. Relevant documents sourced from National Directorate of Employment (NDE) website
9. Relevant documents on National Poverty Eradication Programme (NAPEB)

6.4.4.1 National Policy on Education (NPE).

The NPE is the official policy document of the Federal Government of Nigeria (FGN) on the nation's general education system. The document was produced by the Nigerian Educational Research and Development Council (NERDC). The NPE was first published in 1977, with subsequent revisions in 1981 and 1998. The latest edition which is the fourth

edition was produced in 2004. The NPE states the comprehensive philosophy and goals of education in Nigeria.

The aspect of the policy document focused for analysis in this section was the Technical and Vocational Education (Section 7: sub-divisions 40, 41, 42, 43, 44, 45, 46 c-e, and 47-57).

The main objective of the analysis is to identify the expectations from vocational or crafts training as conceived in the Nigerian Policy on Education. The analysis of the document also aimed at critically and analytically examining the relevant aspects of the NPE on the nation's TVE proposals, so that the actual could be matched with the planned to reveal the short-comings; and afford the charting of a path towards a best practice that will ensure effectiveness in the training and development of construction related crafts in the nation.

The procedure adopted for exploration was to itemise the nation's concept and plans for skills training in the selected sections of the NPE and view same in the light of discoveries from the questionnaire, interview and literature enquiries.

6.4.4.2 National Policy on Education general Description of VET

NPE (2004) describes vocational education as a programme of educating citizens below college grade. It is organised in such a way that the learner is prepared for entrance into a particular chosen vocation or to upgrade or develop employed workers.

Technical education on the other hand, is described as a type of education that emphasizes the learning of a technique or technical procedures and skills, and it is aimed at preparing technicians, usually above secondary school level but not necessarily leading to award of a degree. NPE (2004) enumerates the aims of technical education among others to include the following:

- Provision of trained manpower is applied science, technology and commerce, particularly at sub-professional grades.
- Training young men and women to have an intelligent understanding of increasing complexity of technology.
- Impartation of the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant.
- Giving an introduction to professional studies in engineering and other technologies.

Purpose of Vocational Education is highlighted to Include;

-preparation of the individual to render certain specialised services of economic value and for the economic growth of the nation.

-Impartation and inculcating of specific vocation or skills.

From the definition, aims and purpose as stated in this section, TVE is designed to:

- ***emphasize the learning** of a technique or **technical** procedures and **skills***
- ***impart necessary skills** leading to the **production of craftsmen** who will be self reliant*
- ***prepare trainees** to render certain **specialized services,** and*
- ***inculcate** specific vocation or **skills***

6.4.4.3 Contents Analysis of Selected NPE Sections

1. Section 40 - Concept of TVE

This section of NPE (2004) states that TVE is used as a comprehensive term referring to those aspects of educational process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. The section further highlights TVE as:

- an integral part of general education
- a means of preparing for occupational fields and for effective participation in the world of work
- an aspect of lifelong learning and a preparation for responsible citizenship
- an instrument of promoting environmentally sound sustainable development and
- a method of alleviating poverty

From NPE sub-section 40 TVE should be a training process that:

- *should be an integral part of general education*
- *imparts skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life.*
- *prepares trainees for a vocation that will enhance participation in the world of work.*
- *provides for life-long career development*
- *produces skilled craftsmen that will promote sustainable development in the nation and*
- *equips trainees with employable skills that promote economic viability and poverty alleviation.*

The questionnaire and interview surveys revealed that at the secondary education level; there are no adequate provisions to enhance the impartation of vocational skills that prepare trainees for the immediate world of work that could promote economic viability, poverty alleviation or sustainable national development as of now; especially, as far as the construction sector related crafts are concerned.

2. Sub Section 41: Pre-TVE Plans

This section of the NPE (2004) states that:

The preparatory aspect of pre-vocational training offered to students at the junior secondary level is for the purposes of:-

a. introduction into world of technology and appreciation of technology towards interest arousal and choice of a vocation at the end of Junior Secondary School and professionalism later in life.
b. acquiring technical skills.
c. exposing students to career awareness by exploring usable options in the world of work; and
d. enabling youths to have an intelligent understanding of the increasing complexity of technology.

It could be deduced from NPE sub-section 41 that TVE should be entrenched within the Nigerian education system at the JSS level to:

- *introduce the students early at the JSS level to develop interest in skill acquisition and professionalism later in life*
- *facilitate acquisition of technical skills*
- *create work related career awareness*
- *enable youths to understand the dynamics of technology*

What is practiced in the system as of now is the teaching of introductory technology at JSS level. There are no provisions for necessary and enabling facilities such as workshops, laboratories, tools and practical work tools and equipment to facilitate the accomplishment of any of the above in conventional secondary and most technical schools. The quantitative data and the data collected through the interview revealed that the schools are not equipped to enable students to acquire the desired and needed basic vocational or technical skills.

3. Sub Section 42: Goals of TVE in the NPE

This section of the NPE (2004) states the goal for TVE in the nation's education system as to:-

a. provide trained manpower in the applied sciences, technology and business particularly at craft, advanced craft and technical levels;
b. provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development;
c. give training and impart the necessary skills to individual who shall be self-reliant economically.

It could be deduced from NPE sub-section 42 that goals of TVE to:

- *provide trained manpower particularly at craft and advanced craft levels*
- *provide vocational skills necessary for economic development*
- *give training and impart necessary skills to make trainees economically self-reliant*

From literature and data collected through primary researches conducted, the TVE goals of training manpower at crafts and advanced craft levels, imparting vocational skills necessary for self-reliance and economic development is far from been achieved due to defective implementation and poor infrastructural facilities occasioned by poor funding.

4(a). Sub Section 43 a, b, & c: Plans for the achievement of TVE goals

The section states that in pursuance of the above stated goals:-

a) The main features of the curricular activities for technical colleges shall be structured in foundation and trade modules.
b) The curriculum for each trade shall consist of four components
    i. General Education
    ii. Theory and related courses
    iii. Workshop practice
    iv. Industrial training/production work
    v. Small business management and entrepreneurial training
c) For effective participation of students in practical work the teacher-students ratio shall be kept at 1:20.

As planned and stated in sub-section 43 a, b & c of the NPE (2004);

- *technical schools curricula activities should include foundational and trade modules*
- *curriculum content should feature listed components*
- *teacher-students ratio of 1:20 shall be maintained*

Findings from literature (Odia and Omofonmwan, 2007; Oni, 2007; UNESCO, 2011) and other sources of data collection revealed that the focus of training in Technical colleges is more on the foundation or basic sciences that prepares students to pass university qualifying

examinations rather than on crafts trades. Absence and Obsolescence of workshop equipments are also found to be hindering effective teaching of practical works as proposed in the NPE and included in the curriculum; the quantitative survey analysis also revealed non-cooperation of the construction industry private sector in accepting technical schools trainees for industrial work experience to hinder the exposure of trainees to construction site work experience. The teacher-students ratio far exceed the planned 1:20 in most cases.

4 (b) Sub-Section 43 (d): Expected outcomes of TVE

Trainees completing technical college programmes shall have three options:-

a. secure employment either at the end of he whole course or after completing one or more modules of employable skill;
b. set up their own business and become self-employed and be able to employ others;
c. pursue further education in advance craft/technical programme and in post-secondary (tertiary) technical institutions such as Science and Technical Colleges, Polytechnics or Colleges of Education (technical) and universities.

According to NPE (2004), sub-section 43d as stated above; technical college's education should:

- *produce graduates who are capable enough for employment by the industry(i.e produce employable graduates);*
- *train students that could be self employed and create jobs to reduce un-employment in the nation; and*
- *be able, if desired, to progress unto advance craft or technical related programmes in tertiary educational institutions.*

The qualitative interview and quantitative analyses revealed that the level of practical or industrial work experiences to which the technical colleges' trainees are currently exposed are insufficient to make them employable, talk less of becoming job creators without further extensive and intensive trainings in the industry. Reasons for this are related to earlier mentioned problems such as non-availability of necessary training facilities. The third objective of pursuance of further education seems to be the main focus at the expense of the

primary objective of producing skilled craftsmen for the nation's construction and other industrial sectors.

5. Sub-section 44 - Entry Requirements into Technical Colleges

Minimum entry requirement into the technical college shall be the Junior School Certificate (JSC). Entry could also be based on evidence of aptitude shown in the technical courses and a reasonably good performance in mathematics and science.

Students who have proved exceptionally able in the artisan training centres shall also be considered for admission.

Entry requirements into existing technical colleges according to the NPE (2004), sub-section 44 as stated above; shall be:

- *Junior School certificate;*
- *high aptitude demonstrated in technical courses; and*
- *exceptional graduates from artisan training centres*

The only criteria for admission into existing technical colleges (TCs) and science and technical colleges (STCs) is the JSC with the attainment of appropriate pass marks in the entrance examinations, the other two criteria are not given much consideration. Artisan training centres which are presumably the Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) are private sector led and only very few offer construction related courses. The training programmes are designed to be parallel to those of the established technical colleges; hence, the graduates are not expected to pursue further trainings with the technical colleges expect in advance crafts in very few cases and in relevant trades.

6. Sub-section 45: Provision for Advance Craft courses to ensure skills Development

Every state shall encourage at least one of its technical colleges to offer advance craft courses to prepare master craftsmen for supervisory positions in industry and in teaching.

Provisions for further training for crafts education graduates were made in the NPE (2004), *as stated in sub-section 45 above; by encouraging:*

- *at least one technical college per state to offer advance craft courses;*

***with** the goals of:*

- *producing master craftsmen for supervisory positions in industry*
- *producing graduates who will be able to teach crafts*

The percentage of technical crafts graduates that find it necessary to pursue advance crafts courses is less than 10% and there is no control or record on how many of the colleges offer advance crafts courses. Furthermore, qualifications preferred for teaching in technical colleges, VEIs and IEIs are the National Certificate of Education (NCE), the Ordinary and Higher National Diplomas (OND/HND) and The Technical Teachers Certificate (TTC). Advance crafts qualifications on their own are not usually regarded as meeting the requirement for teaching.

7. Sub-section 46 - Construction related courses in Technical Colleges

The range of construction related courses to be offered in the technical colleges as stated by the NPE (2004) shall include but not limited to:

a. Electrical Engineering Trades:- Electrical Installation and Maintenance Work;
b. Building Trades:- Blocklaying, Bricklaying and Concrete Work; Painting and Decorating; Plumbing and Pipe-fitting;
c. Wood Trades:- Machine, Carpentry and Joinery, Furniture Making; Upholstery.

Listed construction related crafts courses in the NPE (2004), in sub-section 46d&e as stated above are offered in most of the available TCs and STCs; but the militating and prevalent problems of poor funding and infrastructural facilities as identified in the quantitative analysis (chapter 5) and the interview analysis, prevent the turning-out of competent and employable graduates and craftspeople.

8. Sub-sections 47, 48 & 49 - TVE Re-structuring, Certification and Course Duration

47 -The Federal Ministry of Education (FME) and its appropriate agencies shall continue to re-structure vocational courses to be offered on a sandwich basis for school based students and on part-time day-release and block-release for industry-based students.

48 - The National Business and Technical Examinations Board (NABTEB) shall handle technical and business examination and award the National Technical Certificate (NTC), the National Business Certificate (NBC), the Advanced National Technical Certificate (ANTC) and Advance National Business Certificate (ANBC) Modular Trade Certificate.

49 - Length of course in a technical college, like other senior secondary schools, shall be three years for the craft level (NTC/NBC) and one year for the advanced craft level (ANTC/ANBC) Modular Trade Certificate.

> ***47** - TVE has been going through series of reformations in an attempt to enhance its effectiveness in accomplishing the planned objective of producing skilled and competent crafts graduates for the nation's industrial sector. One of such reformation brought about the conversion of the federal TCs to STCs and the recent reform initiative of the FME that approved the establishment of VEIs and IEIs; there were over 80 of such institution as at April 2010 (NBTE, 2010).*
>
> ***48** - The NABTEB continue to be responsible for the conduct of the TCs and STCs final examination and award NTC and ANTC as proposed in the NPE while other parallel examination bodies in the country (i.e. the NECO and WAEC) hand the conventional SSSC examinations.*
>
> ***49** - Duration of training in the TCs and STCs remain three years like other senior secondary schools for the NTC and one year for the ANTC.*

The conversion of the TCs to STCs however resulted in a change from the original focus of training skilled Tradesmen into preparing students for further and higher education (FHE). The proliferation of the VEIs and IEIs were also profit driven, rather than for the interest of

training skilled crafts people for the industrial training; been private owned. Furthermore, courses offered by the majority of the institutions are non-construction crafts oriented, only 5 out of the identified 85 centres offer few construction related crafts courses (NBTE, 2010).

The National Technical Certificate awarded by NABTEB has become a ticket for FHE admission rather than certification for competency to practice as competent and skilled tradesmen or women in the construction industry. This is due to a drift from the focus for the certification of crafts skills into competing with other examination bodies to award certificates that will be tenable for university education admission. The ANTC on the other hand is pursued by few of the TCs and STCs graduates working in the construction sector, not necessarily to advance to the cadre of senior or master craftsmen and women; but, in most cases, for the purpose of gaining admission into colleges of education to obtain a TTC and quit working in the crafts trade level to become instructors in the TCs, STCs, VEIs or the IEIs rather than continue to manage with the 'not-well-paid' and not respected craft trades.

The inference drawn from the opinions of experienced stakeholders in the construction industry as informed by the quantitative and interview data analyses is that; two years of intensive training that is inclusive of adequate industrial work experience after a good exposure to skills rudiments at the JSS level should be adequate for the purpose of imparting the initial employable skills in a construction trade. Further trainings at the crafts centres should then be for the purpose of up-skilling the craftsmen on their chosen trades, or training them on other similar trades to become multi-skilled. The opinions were premised on the notion that the three year duration of the TCs and STCs courses only makes for a reinforcement to favourably compete with other examination bodies in preparing students for university education.

9. Sub-sections 50, 51 & 52 - Strategies for Propagating and commitment to TVE Funding

50 - Science and Technology shall continue to be taught in an integrated manner in the schools to promote, in the students, the appreciation of the practical application of basic ideas.

51 - More effort shall be made to encourage women to embrace technical education.

52 - Recognizing that vocational education is an integral part of technological development, a greater proportion of education expenditure shall continue to be devoted to vocational education at federal and state levels.

> ***50*** *- Integrated science and technology is reflected in the curriculum of the JSS, and physical sciences are offered in the TCs and STCs as proposed and strategized in the NPE.*
>
> ***51*** *- Efforts are been made by some states in the nation through the Ministry of Women Affairs and Poverty Alleviation to encourage women to embrace technical education and acquire crafts skills.*
>
> ***52*** *- Annual budgetary allocation for the education sector has been on the increase since 2007 from data available (FMF, 2011), but it could not be confirmed that a greater proportion of education expenditures are devoted to TVE both at federal and state levels.*

The Quantitative and interview data supported by the secondary data; revealed that non-availability of adequately equipped laboratories and workshops deter students in the TCs and STCs from acquiring the expected appreciation of necessary basic ideas. These courses are in most cases taught through improvised teaching materials.

Few of the states, Lagos for example, are making efforts to mobilize the women folks and youths for skills acquisition purposes. These efforts are however; mostly directed towards non-construction related crafts like hair-dressing/barbing, fashion designing, home economics and computer appreciation. There should be positive and concerted efforts towards changing the notion that construction crafts belong to the male gender.

With regards to fund allocation for TVE, it is somewhat difficult to measure and monitor the commitments of the federal and states education to the funding of education. Education funding initiatives such as the Education Trust Fund (ETF), the Industrial Training Fund (ITF), and the Petroleum Trust Fund (PTF) all seem to focus more on the tertiary educational institutions. The funding of TVE or crafts training in particular seems not to be the responsibility of any particular arm of the government both at federal and state levels. In order to ensure an effective monitoring and control of TVE funding, a particular agency

would need to be charged with the responsibility and be made accountable both at the federal and state level.

10. Sub-sections 53, 54 & 55 - Collaboration and practical approach to Crafts Apprenticeship Training

53 - Each state and local government, in co-operation with appropriate agencies, shall organize relevant apprenticeship scheme and also entrepreneurial training.

54 - Artisan training is obtainable in vocational centre. Emphasis in such centres shall be placed on the crafts and cottage industries within the locality. The products of these centres shall be encouraged to take the NTC and NBC examinations.

55 - Every technical college shall establish and operate a production unit for on-the-job training of students and for commercial activities to sustain college operation.

The planned approach to crafts skills training as stipulated in sections 53 - 55 of the NPE 2004 detailed above include:

- *cooperation of local and state government with appropriate federal and private agencies in organizing apprenticeship and entrepreneurial training;*
- *apart from the conventional government technical colleges and science and technical colleges, other vocational training centres should be involved with the training artisans;*
- *locally relevant crafts and establishment of cottage industries (self employment and job creation) should be the focus of training in the vocational centres*
- *the trainees of such centres should be encouraged and be eligible to take the National Technical Certificate (NTC);*
- *establishment and operation of production units in the technical colleges to facilitate on-the-job training and internally generated income to sustain the operation of the college.*

Data available from the quantitative survey and interview enquiry identified the lack of commitments by the various tiers of government to the implementation of TVE policies as one of the major problem militating against the success and effectiveness of crafts training. The few states making efforts in the area of organizing apprenticeship and entrepreneurial

training are concentrating on non-crafts skills ventures and other soft but non-construction related skills; the VEIs and IEIs also as business ventures are gains motivated and focus mainly of trainings related to Information and Communication Technology (ICT) and other courses not related to the construction industry crafts-skills need.

On the other hand, encouraging the trainees of the VEIs and IEIs to take NTC examination will end up making them aspirants of university education; and not practising craftsmanship for which they were originally trained.

The TCs and STCs that float construction related production units to generate funds internally major on welding and fabrication, the industry in most cases is sceptical in getting such units involved with 'serious business' due to the level of their job quality; which in-turn hinders the accomplishment of the purpose for the creation of such units.

11. Sub-sections 56 & 57 - Government commitment to adequate funding and planned cooperation between Industries, Institutions and the ITF for TVE

56 - In recognition of the fundamental importance and cost-intensive nature of technical and vocational education, government shall provide adequate funds for vocational and technical education.

57 - Cooperation between industries and institutions in training shall be encouraged. Industrial Training Fund (ITF) shall organize staff and students industrial attachment as appropriate and in collaboration with the proprietors, institutions and industries.

Sub-sections 56 and 57 of the NPE (2004) note that:

- *TVE is of fundamental importance to national development;*
- *TVE is cost-intensive in nature;*
- *consequently, the government needs to be committed to adequately funding TVE;*
- *collaborative efforts between the industries and training institutions is necessary for TVE to thrive and produce the planned and expected results;*
- *Industrial Training Fund (ITF)shall be actively involved with the organisation of appropriate mandatory industrial attachment for TVE centres' trainers and trainees;*
- *co-operation between the ITF, institutions and industries is essential for the success and effectiveness of the industrial work experience attachments.*

Findings from the quantitative and interview data analyses revealed poor funding and lack of commitment as a bane of TVE in Nigeria. Even though this section of the NPE recognizes the fact that TVE is of fundamental importance and capital intensive yet, not enough provision is made for the funding of TVE.

TVE funding is also found to be lumped together with the funding of general education and technical education at tertiary level is receiving better attention than at crafts training level; these approaches results in continued under-funding or crafts training and the consequential non-effectiveness of TVE in producing the needed skilled craftsmen and women for the industrial sector.

The planned collaborative efforts between the ITF, industry and the training centres for the organization of industrial work experience or attachments is also discovered to be non-effective. Just as it is with funding, the focus of ITF on Industrial Training (IT) or Students' Industrial Work Experience Scheme (SIWES) is mainly on tertiary education institutions and not on crafts training institutions. As far as the construction industry is concern, majority of the constructions companies are not favourably disposed to absorbing even the construction related polytechnic and university students for the inter-training SIWES; the aspect of industrial work experience for technical teachers stipulated or proposed in the NPE is usually not implemented.

6.4.4.4 Planned Input of National Board for Technical Education (NBTE) in vocational crafts training.

The goal of this section of the document analysis is to identify from available documents; the roles that the NBTE as an agency of the federal government is supposed to be playing in the implementation of TVE policy. The section is based on the documents available on the Board's website and focuses on highlighting the vision and mission of the NBTE vis-à-vis the training of craftsmen for the industrial sector in Nigeria; with the view to ascertaining its relevance and effectiveness in the training of craftsmen and women for the construction sector.

6.4.4.4.1 Goals for the Establishment of the NBTE

The NBTE is a principal organ of Federal Ministry of Education specifically created to handle all aspects of Technical and Vocational Education falling outside University Education. In addition too providing standardised minimum guide curricula for technical

and vocational education and training (TVET), the board supervises and regulates, through an accreditation process; the programmes offered by technical institutions at secondary and post secondary levels. It is also involved with the funding of Polytechnics owned by the federal government of Nigeria. The Board was established by Act No.9 of 11th January 1977 (NBTE, 2011).

From the above highlight, it can be deduced that the NBTE is:

- *an agent or organ of the FME;*
- *vested with the responsibilities of implementation and monitoring of TVET in all training institutions other than the university (namely: TCs, STCs, SS, VEIs, IEIs, Technical Teachers' Colleges[TTCs] and Polytechnics);*
- *responsible for providing TVET curricular;*
- *to supervise, regulate and accredit TVE programmes in the above mentioned training institutions; and*
- *involved with federal government owned polytechnics' funding.*

6.4.4.4.2 The Vision of NBTE

NBTE (2011) states 'our vision is to uphold the ideals of a free, united and egalitarian society and promote good quality technical and vocational education; a system that is flexible and accessible to all for the purpose of producing competent and relevant technological manpower needed for sustainable national development'.

6.4.4.4.3 The Mission of NBTE

The available document about the NBTE also states that mission of the Board is to promote the production of skilled/semi-skilled technical and professional manpower, to revitalize, and sustain the national economy, reduce unemployment and poverty through the setting and maintenance of high standards, provision of current and reliable information for planning and decision making, sourcing and disbursing of funds and adequate linkages with industry.

The vision and mission statements of the NBTE stated in 2 & 3 above provides further clarifications on the roles that NBTE is expected to play; which includes:

- *upholding the nation's education philosophy of promoting the ideals of a free, united and egalitarian society;*
- *promoting good quality TVE;*
- *facilitating a flexible and accessible system for producing competent and relevant technological manpower for national sustainability and development;*
- *promoting the production of skilled/semi-skilled technical and professional manpower with the view to reducing unemployment and poverty;*
- *providing current and reliable information for planning and decision making on TVE;*
- *sourcing and disbursing of funds for TVE and*
- *facilitating adequate linkages between TVE institutions and the industry.*

The NBTE has a seemingly all encompassing role to play in the TVE agenda of the nation and it is trying as much as possible, within the available resources to attain to the vision and accomplish the mission. The emphasis of the Board has, however, has been much centred on the highly skilled technical and professional manpower aspect of the TVE; with less focus on vocational education to produce semi-skilled, sub-professional trades-people much needed for production in the construction industry.

Data available from literature (Aina, 2000; Nnoli, 2001; Atsumbe, 2002; Puyate, 2002; Asilokun, 2004; and Ndomi, 2005) and primary data gathered from questionnaire survey and interview enquiry in the course of this study; agree to the fact that the NBTE is far from achieving its purpose, vision and mission and consequently the planned objectives for the nation's TVET agenda. Considering the fact that the construction industry is one of the major drivers of economic development and one of the highest employer of labour; coupled with the high volume of housing need of the nation (CGI, 2011); the training of construction crafts-skills deserves a more focused attention so that the needed tradesmen and women are available for the sector's operations.

6.4.4.5 Planned Input of Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) in Crafts Training

Available NBTE's documents, reveals that the VEIs and IEIs are institutions recently approved by the FME to provide a veritable alternative route to higher education. The institutions are a product of the recent reform initiatives of the FME in the nations' education sector. The VEIs and IEIs are private institutions that are designed to offer vocational, technical, technology or professional education and training at post-basic and tertiary levels to equip secondary school leavers and working adults with vocational skills and knowledge to meet the increasing demand for technical manpower by the various sectors of the nations economy (NBTE, 2010).

The main objective of the FME for the approval of the VEIs and IEIs was to cushion the effects of the low capacity of the higher institutions to accommodate the multitude of secondary school leavers and the low participation of the private sector in skills training. The plan aims at widening access to TVET, serve the needs of the industry and enhance self-empowerment of the citizenry.

6.4.4.5.1 Target groups for the VEIs and IEIs

The VEIs and IEIs according to NBTE (2010); were expected provide credible alternative form of education for the following groups of Nigerian citizens:

- Secondary school leavers who wish to acquire demonstrable practical skills to secure employment or generate employment;
- Individuals seeking for career paths that do not need university degrees;
- Working class people without time for full time study but want to enhance their skills;
- Persons wishing to go into self-employment;
- University graduates seeking employable skills and
- Adults seeking opportunities to re-skill or up-skill.

The VEIs as vocational institutions were envisaged to offer full and part-time training leading to the award of national diplomas and certificates. Candidates for admission into the VEIs would possess a minimum of basic education certificate; the trainings are designed to cover multi-disciplinary areas that will prepare learners for jobs in most industries. The

IEIs on the other hand are to admit students with a minimum of 5 credits SSSC awarded by NECO, WAEC or NABTEB.

The VEIs were conceived to run three year modular programmes where each year of study could be terminal and shall have a cogent and flexible structure and content that would equip the trainee with a practicable working skill and the possibility to exit at that level. The qualifications obtainable at the VEIs will be the National Vocational Certificate (NVC) (NVC Part 1, 2 and Final).

The IEIs were designed to run diploma programmes full time (2 years) or part-time (3-4 years) of modular courses focusing at imparting employable skills. The qualifications to be awarded by the IEIs will be termed the National Innovation Diploma (NID).

The approval of the VEIs and IEIs as private institutions did actually increased private participation in training by attracting private investors and not the construction organized private sector. From the data available (NBTE, 2010a), between the beginning of 2008 and the end of the first quarter of 2009; at least 85 of such institutions have sprung-up in the various parts of the country. The motivating factor for the rapid response is primarily the gains and not genuine interests to train skills to enhance the employability or self-empowerment of the trainees.

From the overview of the planned purposes for the initiatives for the VEIs and IEIs explained above, the following observations could be made:

- *VEIs and IEIs are private institutions;*
- *they are designed to offer vocational, technical, technology or professional education and training;*
- *the focus of their operations is designed to be at post-basic and tertiary levels;*
- *the goal of training is to equip secondary school leavers and working adults with vocational skills;*
- *the objective is to impart knowledge to meet the increasing demand for technical manpower of the various sectors of the nations economy;*
- *VEIs and IEIs also to supplement for the effects of the low capacity of the higher institutions to accommodate the multitude of secondary school leavers; thus providing an alternative route to further and higher education;*
- *they are meant to encourage the participation of the private sector in skills training; and*
- *provide wider access to TVET and enhance self-empowerment of the citizenry.*

As gathered from the NBTE document listing of the VEIs and IEIs, only 5 out of the 85 centres offer construction related crafts courses such as carpentry and joinery, welding, electrical installation and plumbing (NBTE , 2010a).

The VEIs' concept to run three year modular programmes where each year of study could be terminal that provides cogent and flexible structure and content that would equip the trainee with a practicable working skill and the possibility to exit at that level could be a good approach if adopted by a framework that will specifically address construction related crafts-skills training. The proposed qualifications of modularly designed National Vocational Certificate (NVC) Parts 1, 2 and Final could also make for progression in training and development of skills if the curricula are adequately structured and well implemented.

However, the concept of structuring the institutions to be another route to higher education negates the objective of solving the crafts-skills shortages in the nation; making the institutions as private business concerns also could stall the access they were meant to provide to TVE due to exorbitant training fees. The goal of training competent craftsmen and women for the industrial sector and that of the construction sector in particular might not be met without a re-visitation of the existing education and training structure in the nation.

6.4.4.6 Planned Roles of the National Business and Technical Examination Board (NABTEB) in Crafts Training.

The National Business and Technical Examinations Board (NABTEB) was established to take over craft level examinations which were up till then conducted by UK based examination bodies such as; the City and Guilds of London Institute (CGLI), Pitman's, and the Royal Society of Arts (RSA).

The examination board was established in response to the findings of panels of enquiries into strategies that could be evolved to reduce the burden of conducting examinations on West African Examination Council (WAEC). The goal for creating the Board also include; the desire to bring about greater efficiency in the conduct of public examinations. NABTEB was established by Decree 70 of August 1993.

NABTEB (2011) highlighted the following specific functions it is expected to perform in the TVE programme of the nation:

a. Take over the conduct of technical and business examinations hitherto conducted by the RSA, CGLI and WAEC;

b. Conduct examinations leading to the award of the;

i. National Technical Certificate (NTC)
ii. Advanced National Technical Certificate (ANTC)
iii. National Business Certificate (NBC)
iv. Advanced National Business Certificate (ANBC)
v. Modular Trade Certificate (MTC)

c. Issue results, certificates and make awards in examinations conducted by the Board

d. Conduct other specified examinations on behalf of or in collaboration with other examination bodies or agencies such as London Chamber of Commerce (LCC) or the Institute of Chartered Accountants of Nigeria (ICAN) etc;

e. Conduct common entrance examinations into Technical Colleges and allied institutions;

f. Monitor, collect and keep records of continuous assessment in TCs and allied institutions towards the award of certificates in National Business and Technical Examinations;

g. Conduct research; publish statistics and other information in order to develop appropriate examinations, tests and syllabi in technical and business studies;

h. Prepare and submit to the Secretary an annual report on standards of examinations and other related matters; and

i. Perform other activities as are necessary or expedient for the full discharge of all or any of the functions conferred on it under the Decree.

From the above, the core roles of NABTEB in Nigeria's TVE agenda include:

- *to conduct **craft level examinations** which were formerly conducted by WAEC and other foreign examination bodies;*
- *to conduct common entrance examinations into **crafts training** institutions;*
- *to certify **craft training** institutions' graduates;*
- *to conduct researches relevant to development of TVE related syllabi and examinations.*

data analyses has resulted in having NABTEB to compete with NECO and WAEC in the award of certificates for university education aspirants; rather than examine and certify craftsmen and women for the nation's industrial sector.

6.4.4.7 Planned Roles of the Industrial Training Fund (ITF) in TVE

The Industrial Training Fund (ITF) was established under Decree 47 of 8th October, 1971 (now Act No. 47 of 1971- as amended up to date); as a manpower development agency of the FGN under the aegis of the Federal Ministry of Commerce and Industry (FMCI) to impart technical skills to workers in the manufacturing sector of the nation with the view to addressing the problem of dearth of skilled workforce especially in the Artisans' category. The primary objective of the Fund is to promote and encourage the "acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained manpower sufficient to meet the needs of the economy". In order to finance the scheme, the Act provides for contributions on the part of employers and for subventions on the part of the Federal Government (ITF, 2011).

According to ITF (2011), as part of its responsibilities; the Fund provides the following services:

- Direct Training;
- Vocational and Apprentice Training;
- Research and Consultancy Service;
- Students Industrial Work Experience Scheme (SIWES) administration;
- human resource development information and training technology service to industry and commerce to enhance their manpower capacity and in-house training delivery effort. The main focus of ITF programmes and services is to stimulate human performance,

improve productivity, and induce value-added production in industry and commerce. Through its SIWES and Vocational and Apprentice Training Programmes, the Fund also expected to build capacity for graduates and youth self-employment, in the context of Small Scale Industrialization (SSI) in the economy. The Fund stated its vision to be the foremost skills training and development organization in Nigeria and one of the best in the world. The planned mission of the Fund is to set and regulate training standards and offer direct training intervention in industrial and commercial skills training and development using a corps of highly competent professional staff, modern techniques and technology (ITF, 2011).

The ITF Act made provision for its funding through the collection of a mandatory payment of 1% of the annual payroll from eligible employer and annual subvention from the Federal Government (ITF, 2011a).

In a move to bridge the gap between theory and practise, the fund commenced the SIWES for the trainees of universities, polytechnics and colleges of education in 1974 (ITF, 2011a).

The Fund has also been working in collaboration (ITF, 2011b) with other organizations such as:

- National Employers Consultative Association (NECA)
- National Board for Technical Education (NBTE)
- National Universities Commission (NUC)
- National Commission for Colleges of Education (NCCE)
- National Association of Chambers, Commerce, Industries, Mines and Agriculture (NACCIMA)
- Manufacturers' Association of Nigeria (MAN)

It could be deduced from the above that the ITF was established to address the post colonial skills shortages by:

- *Planning and organizing skills training and development programmes for the nation's industrial sector.*
- *Funding the nations TVE agenda with primary focus on the training skills in the Artisans categories.*
- *Collaborating with the industrial sector in technical manpower training and development.*

The ITF's involvement with skills training seems to have been limited to organizing courses for middle and high level industrial workers, with little effort in the area of apprenticeship and crafts-skills training (ITF, 2011).

Funding for ITF trainings was planned to be a joint effort from the FG and the organised private sector, but the subvention from the government has not been forthcoming since 2001; implying that the funding for the running of the organization has been mainly from the contributions from the industrial sector and fees accruing from the training courses organized by the Fund (ITF, 2011a). The SIWES has also been centred on FHE students and not on the TCs and other vocational education students. The interview survey revealed that most employers are not accepting students for the industrial work experience schemes because of the financial and other resources' constraints. The collaboration of the Fund with other organizations aimed at facilitating skills training and development (see list above) also left out the nations' construction sector.

6.4.4.8 Planned Roles of the National Directorate of Employment (NDE) in Nigeria's TVE Agenda

The NDE was established by the National Directorate of Employment Act 1989 with the mandate of tackling the problems of unemployment through job creation and training of unemployed youths and retired persons for Vocational Skills Acquisition. The Directorate was also mandated to promote entrepreneurship or business development, labour based works, rural employment promotion and job placement guidance and counselling. NDE was to be committed to poverty reduction, wealth creation by ensuring employment generation and encouraging attitudinal change to enable Nigerian Youths to be self-employed and contribute to economic growth and national development (IAES, 2011).

The mission of the NDE was derived from its mandate which include:

a. articulation of policies aimed at developing work programmes with labour intensive potentials;
b. obtaining and maintaining a data Bank on unemployment and vacancies in the country with a view to acting as a clearing house to link job seekers with vacancies in collaboration with other government agencies;
c. designing and implementing programmes aimed at combating mass unemployment;

d. implementing any other policies as may be laid down from time to time by its Board. (NDE, 2011).

The Vision of NDE; is the provision of job for all through the creation of pool of artisans and entrepreneurs among the unemployed through skills acquisition by youths who will promote economic development of the nation. The Directorate's target group were listed by NDE (2011) to include:

a. Youths with little or no education
b. School drop outs
c. School leavers
d. Artisans
e. Women Groups
f. Graduates or tertiary institutions
g. Retired public/private workers (classed as Mature Persons)

NDE's service delivery philosophy promises that the customers would be well equipped with marketable skills that would enable them to be self-employed by establishing their own businesses or finding wage employment if they so desired. Unemployed Nigerian Youths or retired persons who require the services of the NDE were assured of at least being trained in their chosen vocations. Specific National Youth Employment and Vocational Skills Development programmes designed to benefit of the younger population include:

- Small Scale Enterprises - Start Your Own Business (SYOB)
- National Open Apprenticeship Scheme (NOAS)
- School on Wheels Scheme (SOWS)
- Waste to Wealth Scheme (WTWS)

Between 1% and 4% of those trained by NDE were to be resettled with tools and cash (micro-credit) to facilitate starting their own businesses.

The planned service delivery areas include:

- Training
- Posting/Attachment
- Recruitment
- Selection

- Counselling
- Linkage to financial Institutions
- Assistance to prepare feasibility studies
- Graduation

6.4.4.8.1 NDE Partnering with Relevant Stakeholders

As a step towards effective implementation of the NDE planned schemes of making qualitative input into the nations TVE's agenda, the Directorate collaborated with the following stakeholders (NDE, 2011):

- The United Nations Development Programme (UNDP)
- International Labour Organisation (ILO)
- The German Government International aid Agency (GTZ)
- The Nigerian Agriculture Cooperative and Rural Development Bank (NACRDB)
- The Nigerian Export Import Bank (NEXIM)
- The Nigerian Export Promotion Council (NEPC)
- The Nigerian Industrial Promotion Council (NIPC)
- The Nigerian Youth Service Corps (NYSC)
- The Nigerian Railway Corporation (NRC)
- The Shell Petroleum Development Company (SPDC)
- The Nigerian Building and Road Research Institute (NBRRI)
- The International Institute for Tropical Agriculture (IITA)
- The National Poverty Eradication Programme (NAPEP)
- Local Government Councils (LGCs)

From the information provided above, it is evident that the NDE was conceived to be a vital organ in the pursuance of Nigeria's TVE agenda. The Directorate was established to:

- *Plan and execute programmes targeted at vocational trainings among the youth population.*
- *Improve the nation's Artisans practice standard*
- *Mobilise and recruit Nigerian youth for vocational/crafts skills training*
- *Collaborate with the industrial sector for manpower development*
- *Be jointly funded by government and the private sector to improve the nation's economy through job creation and achievement of the TVE goals of the nation.*

The NDE as a government Agency was conceived to make important contributions towards youth empowerment through skills training.

The Directorate has been making spirited efforts towards accomplishing the mandate imposed on it by its enabling Act. The interview enquiry however revealed that the attempts have not yielded desired results due to defective implementations of its programmes.

The collaborative efforts with NAPEP for example have not been centred of skills training but on non-skilled related business ventures.

The skills training strategies employed by the Directorate have also been found to be defective in imparting employable skills to the trainees (Omoruyi and Osunde, 2004; Evawoma-Enuku and Mgbor, 2005; Salami, 2011). The skill training efforts have been haphazardly implemented and the evaluation poor. The NOAS has focused on non-construction related crafts such as automechanics using the informal method of training (Omoruyi and Osunde, 2004).

The collaborative efforts of the NDE (see the list of partners above) left out the construction industry sector such as the allied construction professional bodies and the FOCI (NDE, 2011).

Going by the flaws highlighted in the NDE's project implementation, it could be implied that the skills training efforts of the Directorate have not adequately addressed the needed crafts-skills in the Nigerian construction sector.

6.4.4.9 Planned Roles of the National Poverty Eradication Programme (NAPEP) in Nigeria's TVE Agenda

The growing rate of poverty and increasing level of unemployment especially among the youth population despite the efforts of past regimes to tackle the menace; prompted the government to set-up various panels to review the existing poverty alleviation schemes in 1999. The goal of setting-up the panels was to harmonize and improve upon the existing schemes. The findings and recommendations of the various presidential panels resulted in the formation of the National Poverty Alleviation Programme (NAPEP) in January 2001.

NAPEP was structured to integrate four different schemes which include:

1. The Youth Empowerment Scheme (YES) - concerned with providing unemployed youth opportunities in skills acquisition, employment and wealth generation. The scheme had three sub-divisions namely; Capacity Acquisition Programme (CAP), Mandatory Attachment Programme (MAP) and Credit Delivery Programme (CDP).

2. The Rural Infrastructure Development Scheme (RIDS), with the objective of ensuring the provision and development of infrastructure needs in the areas of transport, energy, water and communication especially in the rural areas. The scheme was divided into four sections namely; Rural Transport Programme (RTP), Rural Energy Programme (REP), and Rural Communication Programme (RCP).

3. The Social Welfare Services Scheme (SOWESS); aimed at ensuring the provision of basic services including quality primary and special education, strengthening the economic power of farmers, providing primary heath care. The scheme was divided into four broad sub-sections namely; Quality Education Programme (QEP), Primary Health Care Programme (PHCP), Farmers Empowerment Programme (FEP) and Social Services Programme (SSP).

4. The Natural Resources Development and Conservation Scheme (NRDCS); targeted at bringing about a participatory and sustainable development of agricultural, mineral and water resources. The scheme had four sub-divisions namely; Agricultural Resources Programme (ARP), Water Resources Programme (WRP), Solid Minerals Resources Programme (SMRP), and Environmental Protection Programme (EPP).

According to nigriafirst.org (2006), the ultimate goal of NAPEP was to completely wipe out poverty from Nigeria by the year 2010 through the following phases:

- Hope restoration in the mass of poor Nigerian through provision of basic necessities especially in the rural areas of the country;
- Restoration of economic independence and confidence and
- Creation of wealth among the populace.

NAPEP is funded through the Poverty Eradication Fund (PEF) which is administered by the National Poverty Eradication Council. All poverty alleviation programmes are budgeted for by participating ministries, funds are also provided through contributions from federal, state and local governments, the private sector, international donor agencies such as the United Nations Development Programme (UNDP), World Bank, European Union (EU) international development department, Japanese International Cooperation Agency and the German Technical Assistance (nigriafirst.org , 2006).

Analyzing the contents of the NAPEP story stated above, prominent among the planned input of the agency in the TVE agenda of Nigeria could be summarized as follows:

- *to provide opportunities to unemployed youth in the area of skills acquisition*
- *to equip the unemployed with employable skills that will help them secure and even create employment*
- *to assist the masses to generate wealth through gainful employment*
- *to enhance capacity acquisition among the citizens*
- *to promote and fund quality vocational and crafts training programmes*
- *to provide basic infrastructures that will enhance skills acquisition*
- *to arrange mandatory work experience placements for vocational crafts trainees*
- *provision of micro credit to TVE graduates to encourage self-employment*

Observations from the document related to NAPEP and facts emerging from data gathered through literature (see discussion of findings in chapter 7), and qualitative interview (as analyzed in the earlier part of chapter 6 above) revealed that the efforts of NAPEP in the area of promoting economic empowerment and skills acquisition among the youth has centred mostly on provision of commercial transportation three-wheeler motor-bike (locally and popularly known as 'KEKE-NAPEB') which is viewed as 'non-vocational' skill ventures. Focus on training of skills over the years has also been restricted to training few people in

tailoring and fashion design. The skills acquisition promotion efforts have not been directed towards construction related vocational skills.

It is also observed from the available documents that the National Coordination Committee of NAPEP did not include any representative from the Nigerian construction sector; hence the vocational skills training needs of the industry did not receive any noticeable attention in the agency's training efforts.

NAPEP is well funded and if the construction sector can collaborate with the agency in planning and organizing construction related CST, much burden in the area of funding could be reduced.

NAPEP has a broad-based monitoring structure with coordination committees in all the 36 states in Nigeria, including the Federal Capital Territory (FTC), Abuja. It also has local government monitoring committees established in all the 774 local government areas in the country (nigriafirst.org , 2006).

The opportunities provided by the available wide-spread facilities of NAPEP in the various parts of the country could be annexed to facilitate viable avenues for reaching-out to the youth population in all the local government areas and assists with the planning, implementation and monitoring of construction industry CST.

6.4.4.10 Planned Roles of the Education Tax Fund (ETF) in Nigeria's TVE Agenda

The Education Tax Fund (ETF) was established as an intervention agency under the Education Tax Act No. 7 of 1993 and amended by Education Tax (Amendment) Act No. 40 of 1998; with project management to improve the quality of Education in Nigeria. To enable the ETF achieve the above objectives, Act No. 7 of 1993 as amended imposes a 2 percent (2%) Education Tax on the assessable profit of all registered companies in Nigeria. The Federal Inland Revenue Service (FIRS) is empowered by the Act to assess and collect Education Tax. The Fund administers the tax imposed by the Act, and disburses the amounts to educational institutions at Federal, State and Local Government levels. It also monitors the projects executed with the funds allocated to the beneficiaries (ETF 2011). FGN (1993) through the ETF Act established a Board of Trustees to manage and administer the Fund for disbursement to the Federal, State and Local Government educational

institutions including secondary and primary schools, for the restoration, rehabilitation and consolidation of education in Nigeria.

The main thrust for the establishment of the ETF was the improvement of the quality of education in Nigeria, the specific roles of the Fund as summarized in the Act include:

- Providing funding for educational facilities and infrastructural development;
- Promoting creative and innovative approaches to educational learning and services;
- Stimulating, supporting and enhancing improvement activities in educational foundation areas like Teacher Education, Teaching Practice, Library Development, etc;
- Championing new literacy-enhancing areas such as scientific, information and technology literacy.

The Act empowers the Fund to collect education tax and disburse same for the following projects:

- Execution of the 9 year compulsory education programme
- Library system at the different levels of education
- Staff development and conference attendance
- Research equipment procurement and maintenance
- Workshops and prototype development
- Higher Education Book Development Fund.
- Redressing any imbalance in enrolment mix as between the higher educational institutions and :

In disbursing the tax between the various levels of education in the nation, FGN (1993) stipulates that:

i. The higher education section shall receive 50 per cent
ii. The primary education section shall receive 40 per cent and
iii. The secondary education section shall receive 10 per cent of the total tax collected in any one year.

FGN (1993) in the ETF Act further specifies that the distribution of the tax accruing to the higher education section will be in the ratio of 2:1:1 as between universities, polytechnics and colleges of Education.

The content of the above data reveals that the ETF input the Nigeria's TVE Agenda include:

- *generation and disbursement of funds through imposition of tax on companies; for the purpose of improving the educational system*
- *assisting with funding educational infrastructural facilities such as workshops, library and other similar projects*
- *annual disbursement of funds to cut across all levels of education*

It could be observed from the foregoing that the ETF through the assistance of the FIRS has been effective in the collection and disbursement of the education tax over the years, and the Fund has been executing and monitoring different intervention projects in the nation's educational sector.

A critical analysis of the ratio for the disbursement of the fund between the various education system shows that the higher education institutions that train highly skilled and middle level manpower for the nation receives more funding than the secondary schools.

The TCs, STCs, VEIs and IEIs; that train crafts level manpower were not given specific mentioning but lumped-up with the secondary schools. Primary education level receives higher share above the secondary education level.

EFT presence has been more evident in the tertiary institutions over the years, however, if the focus of the Fund is re-directed towards apportioning a good percentage of its proceeds towards TVE and particularly construction related CST; more artisans would be trained and developed for the nation's industrial and construction sector.

6.5 Chapter Summary

The chapter presented the qualitative interviews data collection and analysis along with the presentation and analysis of relevant documents pertinent to the crux of this research project. This chapter of the report is imperative to the study because the emerging findings from the interview and document analyses provide vital information necessary for the development of the construction crafts training and development (CCTD) framework. The chapter commences with the aim and explained issues related to the qualitative survey structure,

validity and reliability, sampling, piloting and methods of data collection for the qualitative enquiry. The profiles of the interview participants in terms of their professional practice and training backgrounds, years of practice experience and current status in the construction industry was also presented.

The first part of the chapter featured the analysis of the data collected through the qualitative interview enquiry under various themes compatible with the overall research aim and objectives. The latter part of the chapter presented the document analysis aspect of the qualitative enquiry and discussed the guiding principles for the choice of documents for analysis. The summary of the planned or expected input of each of the selected agencies to the Nigerian VET agenda were highlighted and the variances between the expected and the actual input for each of them explained. The inherent benefits and possibilities for the Nigerian construction sector collaborating with the various agencies to achieve the CCST goals were also underscored.

The qualitative interview analysis corroborated the issues that emerged in the quantitative data analysis by discovering the past and prevalent crafts training strategies in Nigerian, problems confronting CST, effects of such problems on construction crafts practice, factors discouraging youth from showing interest in construction related skills acquisition, strategies and avenues for mobilizing them, and the roles the construction sector private sector can play in making CCST effective among others. The document analysis revealed that if an appreciable percentage of the efforts of the existing and available funding and administrative agencies in Nigerian are articulated and directed towards construction related CST; the vocational crafts training problems in the sector will be adequately addressed and the crafts-manpower shortage problems abated. Findings from the analyses are further discussed in chapter 7.

7.0 Discussion of Findings from Quantitative and Qualitative Data Analysis

7.1 Introduction to the Chapter

The main aim of this chapter is to articulate and discuss the relevant findings from both the quantitative and qualitative data analyses. The chapter discourses the findings from the analysis of quantitative data presented in Chapter five along with the findings from the analysis of qualitative data collected through interviews and document analysis as presented in chapter six of the report. The design of the quantitative and qualitative data collection instruments was guided by the central aim of the research which is the examination of the problems facing Nigerian System of Vocational Education and Training (NSVET), with the view to developing a Framework for the training and development of construction craft skills to improve labour supply in the Nigerian Construction sector. The study objectives and research questions were also of central consideration in the planning and conduct of the quantitative survey and the qualitative interview. The analysis of quantitative and qualitative data in chapters five and six respectively were also structured and set out in line with the study aim, objectives and questions of the study; similarly, the discursion of findings from analyses presented in the chapter follows the same principles.

7.2 Findings from Quantitative and Qualitative Data Analyses

The discussion of findings from both the quantitative and qualitative data analyses are presented in this section in thematic format based on the variables under the various propositions in the questionnaire survey, the interviews and documents enquiries. The main themes of discussion as itemised under the section are as detailed-out in Table 5.5 in chapter five of the thesis.

7.2.1 Past crafts training methods

One of the set objectives of this study is to examine the past and current methods of Vocational education/Training for Craftsmen in Nigerian construction industry, with the view

to identifying the past approaches to Artisan's training and determining their strength and weaknesses.

- It was evident from the analyses, that the common methods for training and producing construction related tradesmen in Nigeria over the years has been through the Trade centres and Technical colleges. These institutions during the pre 1970s and up to the late 1980s pursued vocational curricula that focused on the combination of classroom instruction, which involved training in basic material sciences and numeracy with hands-on intensive workshop and laboratory work; coupled with on-the-job training which prepared the trainees for the world of work. Vocational training must always take cognizant of the needs of society and of the individual while meeting the demands of the economy, the abilities of individuals must be utilized to the fullest (Salami, 2011). CST focus of the TCs in Nigeria in the past was goal oriented and succeeded in producing capable crafts workforce for the various sectors of the economy.

- The locally organized informal (local) apprenticeship training route was also recognized and confirmed from the analyses as a noted method for the training of craftsmen for the Nigerian construction industry in the past. The informal apprentice systems of crafts training is widespread throughout all occupations in the country; the trainees provided service to the instructors over a period of years and eventually become independent on graduation. Apprenticeship scheme is a form of traditional or indigenous education practiced in all the geo-political zones of the country, this method of crafts skill training is believed to train individuals to fit usefully into the society by learning and practising economic skills for self-sustenance; and contributing to the overall development of the society. Apprenticeship training, which dated back to pre-colonial era, was the most predominant type of on-the-job training. It is a type of on-the-job training which usually takes relatively long periods of training for specific levels of skills such as bricklaying/blocklaying, concreting, carpentry, plumbing and welding and other core construction trades. The duration of apprenticeship depends on the type of skill involved, the educational background of the trainee among others; and would be from about two to six years. Under this training program, trainees or new employees are trained by allowing them to perform under the guidance of an experienced worker. A major set-back with this craft training route however, is that it

has not fixed curricula; and it lacks necessary basic sciences and numeracy knowledge due to the fact that many of the instructors were semi-illiterates who were locally trained on the job. Furthermore the trainees are hardly exposed to modern tools and technology except in cases where the scheme is undertaken within an established indigenous or expatriate's construction firms.

Evawoma-Enuku and Mgbor (2005) view the in-formal apprenticeship scheme in Nigeria as a traditional apprenticeship system which is characterised by a contract between a master craftsman and an apprenticeship. The apprentice pays a fixed fee for a fixed number of years of training; the master craftsman has full control of both the trainee and the training, while there is no input from the government. Sometimes, based on the contract of agreement between the trainee's parents and the craftsman; the trainer accommodates the trainee for the duration of the training. It is a form of workplace learning which enables the apprentice to have on-the-job training. The training approach of the traditional apprenticeship as assessed by Uwameiye and Iyamu (2002) include the introduction of the apprentice to the code of conduct, names and uses of tools and machines found in each trade. As earlier mentioned, there is no formal curriculum in use, jobs at hand at a point in time determines the content of instruction; learning process is through observation; there is no clear theoretical explanation for operational principles while safety in the workplace is usually taught during orientation. Evaluation both during and at the end of the training is not based on organized testing procedure, but the customers approve of the apprentice' job mastery through consistent approval of the work done.

Uwameiye and Iyamu (2002) observed further that the informal apprenticeship training system does not prepare trainees for opportunities to judge situations based on available theoretical principles; because the system lacks the theoretical base for the skills acquired. The training mode and trainee's evaluation are also haphazard in nature, and there is the possibility of poor skill formation under an ill-equipped and a disorganized master craftsman. The expiration of the contract agreement does not also signify that the apprentice has actually acquired the necessary skills and competencies to practice as a qualified tradesman in the industry.

Informal apprenticeship as it was practiced in Nigeria in the past was a common avenue for vocational skills acquisition for youth who could not progress beyond the primary school

education level, the apprentices are also treated as 'servants' by the master craftsmen rather than a trainee. Just as observed by one of the interview participants that trainees in the scheme are usually sent to the master's home to wash cloths and do other domestic works for the master's house-hold. All these anomalies in the scheme culminate in the scheme becoming obsolete for CST and fast disappearing in the modern Nigeria.

The Science and Technical Colleges (STCs), though rated lower by the respondents as one of the past effective construction training methods in Nigeria is a relatively a new phenomenon. The Federal Government Technical Colleges (FGTCs) of old were branded STCs around the mid 1990s, and rated parallel to the conventional secondary schools. The focus of the new STCs was also shifted from preparing trainees for the world of work into preparing them for the National Technical/Business certificates (NTC or NBC) which is awarded by the National Business and Technical Examinations Board (NABTEB). The award is rated as been equivalent to the Secondary School Certificate (SSC) and qualifies the STCs graduates for admission into higher institutions of learning; rather than for practise as craftsmen in the industry.

Salami (2011) has observed that one of the major problems of the Nigerian past education policies stems from the fact that policies are not allowed to run their full course before they are changed. Another structural related problem according him, seem to be the general bias of educational curricula towards science and liberal arts education with little regard for VET; which is attributed largely to the belief that graduates of secular education stand a better chance of occupying top positions in the economy. The shift of focus of the TCs from the training of craftsmen and women to the training of FHE aspirants has affected the effectiveness of the Technical colleges and the former trade centres in producing the needed competent skilled Tradesmen for the Nigerian construction industry. Some of the interview participants viewed that change in the status of the TCs to STCs and a shift of focus from producing craftsmen for the world of work to producing candidates for university education; thereby robbing the Nigerian industrial sector of needed and competent crafts people that would have contributed to the sector's growth and overall national development. This view is also in line with that of Salami (2011) who opined that the neglect of VTE has been robbing the nation of the potential contributions of its graduates to national growth and economic

development. Dike (2009) similarly asserts that TVE is a major driver of economic growth and particularly holds the key to Nigeria's economic development. The consequent of this shift of focus and change of policies is the shortages of competent craftsmen and women been currently experienced in the Nigerian construction and other industrial sectors.

7.2.2 Present effective training methods

The crafts training method adjudged currently to be most effective is the formal apprenticeship method; which is a combination of classroom instruction with practical site work. The vocational Training Institutes (VTIs) which are supposedly established to run formal apprenticeship training programme in Nigeria at present are the Science and Technical Colleges (STCs), Vocational Innovation and Enterprise Institutes (VIEIs), however; these training institutes are faced with divers odds that militate against their effectiveness in training and producing competent skilled crafts graduates.

The Science and Technical Colleges (STCs) can be an effective route for combination of classroom instruction with practical site experience in the training of low-level manpower such as construction related tradesmen, if more emphasis is laid on preparation of trainees for the world of work rather than only for further education. Investment in form of adequate funding will also be an utmost necessity for the colleges to acquire training equipments and improve the capacities of crafts training institutions to discharge the roles of training effectively (Dainty *et al.,* 2004; Johanson, 2002; Ziderman, 2001). Collaboration and partnering between government and the organized construction sector is paramount in addressing the challenges of provision of modern training equipments and in the management and running of the STCs.

Vocational Innovation and Enterprise Institutes (VIEIs), as mainly private institutions can be made effective in the training of construction related crafts with input from both the various tiers of governments, allied construction professional bodies and the organized construction industry private sector. Most of the VIEIs as at present are run by private individuals who lack the required capital to procure needed tools and equipments necessary for the training and preparation of trainees for the world of work. Another emerging fact from the document analysis was that the establishment of the VIEIs was 'gain' oriented rather than 'goal' motivated. The proprietors established those institutes for the purpose of financial gains

rather than for the goal of imparting vocational skills that will enable the graduates to be employable. Only five out of the eighty-five VIEIs registered by the NBTE as of April 2010 offered construction related crafts courses. The VIEIs were also established in pursuance of the government's vision stated in the NPE to make the nation's education vocational-oriented with the view to economically empower the trainees and eventual graduates. Omoruyi and Osunde (2004) has rightly observed that a fundamental change brought about by the NPE was the recognition and introduction of vocational courses in the educational curriculum; and the policy marked a deliberate shift in emphasis from literary to technical and science-oriented education and training. The policy of VTE was adjudged laudable because it was capable of promoting the appropriate vocational skills at various level of the nation's educational system and thus fostering the empowerment of the individuals and the development of the nation. It was also envisaged that the VTE agenda of the nation would help stem the high rate of unemployment and promote socio-economic revolution in the country by producing self-reliant citizens through purposely implementation and monitoring. Regrettably however, the reverse has been the case; VTE in Nigeria continue to fall short of what was expected. Despite the policy changes and educational reforms, the TVET in the nation remained lopsided with the adverse consequences of shortages of needed crafts people in the industrial sectors and dearth of competent bricklayers, carpenters, plumbers and other crafts-skilled men particularly in the nation's construction sector.

Considering the important contribution of the construction sector as one of the major drivers of economic growth for the nation, and the increased demand for sustainable housing occasioned by the growing population in Nigeria; there is an urgent need to device means and modalities for constant training and development of sufficient numbers of competent crafts workforce in the nation's construction sector.

7.2.3 Factors affecting effectiveness of crafts skills training in Nigerian construction sector

Factors militating against effective crafts skills training (CST) as identified from the quantitative and qualitative data analyses include:

i. Poor funding of vocational education and training (VET).

ii. Absence of modern training facilities in the existing vocational education training centres.
iii. Absence of a functional and effective Crafts-skills Training Framework (CSTFW)
iv. Obsolescence of training facilities in the existing crafts skills training (CST) centres
v. Lack of commitment to the pursuit of policies on Technical and Vocational Education (TVET) by the various tiers of government.
vi. Inadequate participation and lack of commitment of construction industry's private sector to VET.
vii. Non-implementation, abandonment or truncation of policies on TVET.
viii. Application of defective training and instructional methods in TVET.
ix. Insufficient practical work instructions in the TVET curricula.
x. Shortages of Vocational Education (VE) instructors

Findings from the available literature also corroborated many of the above listed as problems confronting TVET and negatively affecting its effectiveness in producing the needed skilled crafts workforce for the Nigerian construction sector. Some of the identified problems are further discussed below.

7.2.3.1 TVE Funding

The responsibility for the funding of TVE as it is for other sectors of public education in Nigeria is vested in the three tiers of government of the federation: Federal Government (FG), State Government (SG) and the Local Government (LG). State owned or public vocational training institutions (VTIs) are solely funded by the government. Trainees in these VTIs pay subsidized and relatively low fees and charges which constitute an insignificant proportion of the finances for the running of the institutions (UNESCO, 2009). However, Salami (2011) has identified low budgetary allocation to VTE sub-sector as one of the structural problems facing the Nigerian education sector. This in-turn affects the effectiveness of VTE in producing the needed crafts workforce for the various industrial sector of the economy and has implication particularly for the construction industry. He blamed poor leadership, corruption and mismanagement of resources in the nation as contributing factors to the gross under-funding of VE; and added that one possible explanation for the low budgetary allocation is the perception by some of the policy makers that education does not provide immediate return on investment (ROI). Other studies (Aina, 2000; Nnoli, 2001; Atsumbe, 2002; Puyate, 2002; and Umar, 2005) have identified poor funding as a militating factor

against VTE in Nigeria. Furthermore, it might be considered that the task of solely funding the VTIs from the over-stretched and sparse government resources, which have to be extended for the running of other arms of government; might be a burden too heavy which is responsible for the present situation. Conversely VTIs that are privately-owned are funded with fees paid by the students; hence adequacy of funding might be restricted or affected by the available resources. The NBTE (2010) through its acting Executive Secretary has also informed that the delivery of TVE is a very expensive venture which required massive funding and investment in both human and material resources, and indicated that government alone was no longer financially capable to shoulder the burden of funding TVE without the active participation of the private sector and other stakeholders. Any worthwhile effort in funding TVE would have to consider partnering efforts of both the private and the public sectors.

7.2.3.2 Training facilities for VET

Absence or obsolescence of training facilities in the existing CST centres are directly linked to the problem of poor funding discussed above. Training in any of the VTIs should be effective enough to make the trainees become competent craftsmen and technicians who will be qualified and be employable both in the private and the public sectors of the economy. Ndomi (2005) asserts that the various sectors of the economy require competent and adequately trained crafts crew who will be able to operate and maintain the available job related machineries and equipment. In other to achieve the ultimate goal of the VTIs which is to train and prepare trainees for the field of work, there is need for well equipped workshops with relevant and up-to-date training facilities. Availability of such facilities enhances student learning through involvement in practical demonstration which helps skills acquisition and development; at in-turns develops the trainees' practical skills in preparation for integration into the world of work (Umar and Ma'aji, 2010). The prevalent situation with most VTIs in Nigeria however, is that of lack of necessary training facilities; and where some exist they are obsolete and unserviceable for the purpose of training. Puyate (2002) has observed that the state of VTE facilities is very poor and there is an urgent need to address the present situation if the nation's goal for VTE as indicated in the NPE is to be accomplished. Umar (2005) also opined that funds derived from VAT should be directed towards financing VTIs because if

appropriate strategies are not put in place to address the problems of shortages of training facilities in the VTIs workshops; the realization of the goals of TVE in Nigeria would be a mirage rather than a reality. In recent times, there has been increasing support from few privately owned companies. Such support, which usually take the form of donation of used or re-furbished workshop equipments to VTIs; endowments and funding of relevant infrastructural facilities are still insufficient.

Provision of modern training tools and equipment for VET is a capital intensive venture. Provision of up-to-date training equipment has to be a collaborative effort of both the public and the private sector. Apart from the general education trust/tax fund (ETF), there might be a need for a well monitored and adequately managed VE tax to facilitate the provision of modern training facilities for the VTIs. A good percentage of the World Bank assisted financing for Science and Technology Education at the Post-Basic (STEPB) level which is aimed at supporting the enhancement in post-basic science and technology education (PBSTE) needs to be allocated for procurement of necessary facilities for the training of construction related artisans.

7.2.3.3 Framework for Construction related Crafts training

The absence of a functional and effective Crafts-skills Training Framework (CSTFW) that will specifically address the training and development of construction related crafts-skills is one of the striking issues identified as posing challenges to the training and development of confident and competent craftsmen in the Nigerian construction sector A mere reference to vocational education as part of general education in the nation's policy on education is inadequate for addressing the issue of training and development of competent construction related craftsmen and master-craftsmen needed for nation building. The approach to the training and development of skilled crafts people for the sector needs to be unique and 'industry specific' in order to be effective and sustainable in producing capable and productive skilled workforce.

Due to the absence of functional CST framework in the nation, vocational skill training and Development programmes have been observed to be lopsided with the adverse consequence of unemployment rate among the youth assuming an alarming proportion. (Omoruyi and

Osunde, 2004). Construction Craftsmen and women are principal or major in the productivity improvement in the construction sector and in national development. The nation cannot afford not to have a framework for the training of trades-people for the construction industry which is an important sector of the economy. Muya *et al.,* (2006) among other things recommended the formulation of training provision framework that encourages an increased involvement of private sectors as a potent tool for tackling the construction industry craft skills training problems in the Sub-Saharan African states. Awe *et al.,* (2011a) has also identified the relevance of a training framework in effectively addressing Artisans shortages in the Nigerian construction sector.

7.2.3.4 Commitment to Policies on TVET and its implementation

The analyses identified a lack of commitment to the pursuit of policies on Technical and Vocational Education (TVET) on the part of the various tiers of government. Although the Federal and State governments both seem to be showing concerns towards economic empowerment and reduction of poverty level in the nation (Omoruyi and Osunde, 2004; Evawoma-Enuku and Mgbor, 2005; Egunyomi and Ekom, 2010; Awogbenle and Iwuamadi, 2010; Salami, 2011); it is noted that the Nigerian nation is evidently lagging behind in preparing her workforce for the challenges of the rapidly changing global economy. While vocational education has continued to thrive in many societies, the nation seems not to be taking it seriously (Dike, 2004). In order to accelerate economic and developmental goals in the nation; government efforts will have to be complemented with the input from the private sector and other role-players in the nation's construction industry. Furthermore, a reasonable percentage of international financial aids such as the IMF and UNESCO - TVE Revitalisation Project which is a collaborative initiative with the government of Nigeria to foster skills training and development will need to be committed to the training of needed trades-people for the nations' construction sector.

The qualitative analysis also underscored the lack of commitment to the pursuit of laudable policies on TVET to a logical conclusion, as one of the major problem confronting CST in the nation. It is noted that apart from the national policy on education (NPE), in recent times; there has been policy-related poverty reduction strategies; such as the National Economic Empowerment and Development Strategy (NEEDS) and the State Economic Empowerment and Development Strategy (SEEDS) aimed at addressing economic and social development of

the nation. The country evidently needs well trained and better equipped low and middle-level crafts graduates to cater for the growth and development of its non-oil sector of the economy (UNESCO, 2009). Abandonment or truncation and lack of commitment to the implementation of policies to fruitful ends have been a major challenge to goals accomplishment in the various sectors of the economy in the past; this is glaring in the implementation of policies related to TVE in the nation. Salami (2011) has rightly noted that one of the major problems of past education policies in Nigeria stems from the fact that new policies are not allowed to run their full course before they are changed. The nation has witnessed series of education reforms in an attempt to attain effectiveness, but these notwithstanding; VTE is still far from achieving the goal of producing the needed crafts manpower for the construction and other sectors of the economy.

7.2.3.5 Curricula for VET

The quantitative analysis also identified the absence of practical instructions in TVE curriculum along with defective training and instructional methods as part of the nagging problems militating against the training of craftsmen for the nation's construction industry. Since the primary role of VE is to train low-level manpower such as artisans, operatives, craftsmen and master-craftsmen for commerce, industry, agriculture and ancillary services; the design and implementation of the curricula should not be geared towards further education or acquisition of mere paper qualification as it is the present case; in which the STCs students are been prepared to write NABTEB examinations so as to gain admission into the university and other further and higher education (FHE) institutions. Salami (2011) observes that one related structural problem of education and training in Nigeria seem to be the general bias of educational curricula towards science and liberal arts education with little regard to VTE. He attributed the phenomenon largely to the belief that the educated stand a better chance of occupying top positions in the economy. Conversely Odusami and Ene (2011) has noted that the average Nigerian construction craft worker is to a large extent untrained because training is basically unstructured and mostly based on the traditional apprentice schemes which lack structured curricula or standard approach to testing and certification. VET curricula and the teaching approach should rather be directed towards development of both the psychomotor and cognitive skills of the trainees, and impart vocational skills to make them competent,

confident, productive, employable and to a great degree self independent; and to be able to enhance personal economic status of the graduates and also facilitates their capacities to contribute to the training of new hands and ultimately to national development.

7.2.3.6 TVE Teachers and Instructors - training and development

Another issue demanding attention and which emerged from the analyses as one of the factors militating against skills training in Nigeria is the shortages of qualified TVET teachers. The training and continuous professional development (CPD) of teachers and instructors for CST is highly imperative for the training of competent and confident construction related craftsmen and women. A previous study by Muya *et el.,* (2006) and Salami (2011) has revealed that poor funding has resulted in ill-qualified, low numbers of poorly remunerated teaching staff; poorly maintained infrastructure, and workshop facilities not well-equipped for teaching purposes; and out-dated curricula of construction craft courses. Vocational teachers need to have good knowledge of modern tools, equipment and construction materials in order to be able to adequately teach crafts trainees. Crafts-skills Instructors need to attend programmed refresher courses in order to keep up-to-date with current technological innovations in the Built environment with the view to strengthening their pedagogical skills and capabilities. Teachers/Trainees ratio is one other relevant factor that requires appropriate considerations in the training and development of capable craftspeople. Furthermore, NPE (2004) planned that for effective participation of students in practical work the teacher-students ratio shall be kept at 1:20; but the situation of available training facilities coupled with the available number of instructors has made it impracticable to stick to the teacher-student ratio specifications in most VTIs.

7.2.3.7 Participation of construction industry private sector (CIPS) and Allied Construction Professional bodies Regulatory Councils (ACPBRCs) in CST.

Non-participation of construction industry's private sector (CIPS) in the training and development of craftsmen was also identified from the analyses as one of the factor militating against effective training of craftsmen in the Nigerian construction industry. The efforts of funding and management of CST should be collaborative rather than been a sole responsibility of the government. Findings from the qualitative data analysis suggested that the Regulatory

councils of the various construction bodies along with the allied construction industry professional bodies need to participate fully in the planning, organising, monitoring and funding of construction related CST. This is in consonance with the findings of the studies conducted by Yakubu (2005); Umar and Ma'aji (2010) which recommended that the private sector should be encouraged to initiate and participate in the provision of facilities, linkages between schools and interest groups; furthermore that VTIs proprietors should explore cooperation with non-government sources for funding to enable them generate enough finances to adequately equip institutions for effective teaching and learning.

7.2.4 Effects of militating factors on quality and quantity of crafts-skills

The factors militating against the effectiveness of crafts-skills or vocational training discussed above have implications for both the standard or quality of works as well as the quantity or number of competent artisans supplied to the Nigerian construction industry.

7.2.4.1 Effects of skills training problems on the quality/standard of work

The problems confronting TVET deprive the trainees the knowledge, skills and competencies (KSCs) they suppose to acquire in the course of their training; and consequently affects their productivities and performances after graduation, in form of low standard job-output. This makes them to lack the confidence to operate without close supervision and monitoring, renders them un-employable and incompetent to become self-employed. According to Odusami and Ene (2011), the result of the haphazard approach to construction crafts training in Nigeria has resulted in the sector's crafts workers been accused of; low work quality resulting in unacceptable levels of material wastage during the construction process and attendant high costs of maintenance during the life cycle of the structure and low productivity in terms of 'per-time' work output when compared with counterparts in Asia, western countries or other west African countries.

7.2.4.2 Effects of crafts training problems on the quantity/number of craftspeople

The militating factors against the effectiveness of VE also have implications for the number of seasoned and competent craftspeople been supplied to the construction sector. When the available infrastructural facilities and other resources at the disposal of the VTIs are over-stretched due the limited number available, or they become unserviceable due to obsolescence as a result of poor funding; the number of candidates admitted for training will be reduced. This is already evident in form of shortages and ageing workforce among the available craftspeople in the Nigerian construction sector. Mackenzie *et al.,* 2000; Johanson, 2002; and Dainty *et al.,* 2004 has posited that skilled and qualified workforce shortages is a global challenge for the construction sector and opined that investment in training is the antidote for addressing the persistent problem of construction craft skills shortage in many parts of the world.

7.2.5 Influence of militating factors on crafts trades practice

The problems confronting VET or CST in the nation has great degrees of negative influences on almost all the core trades in the construction industry. The identified problems as discussed in the above findings (see section 7.2.3) affect CST instructional mode and curricula implementation; and these are evident on the quality or standard of knowledge acquired by the trainees and consequently the work output of the graduates. An average Tradesman can hardly work independently without very close monitoring and supervision, their knowledge of numeracy, material science and management is also low. The construction crafts trades found to be severely affected from the quantitative analysis include: Bricklayers, Blocklayers and Stonemasons' trades, the Plasterers' trades, Structural Reinforcing/Welding trades, Plumbing and Pipe-laying trade, Concretors' trades, Carpenters and Joiners' trades, Electricians and Roofers trades among others. Odusami and Ene (2011) has also observed that poor performance and low productivity problem on construction sites can be directly linked to poor and inadequate training of construction crafts skills workers; they indicates that with shortages in supply of skilled workers, there is the tendency for unskilled workman to be attracted and paraded as a skilled tradesman. A non-skilled site labourer after working for a certain period of time with a craftsman can procure working tools and presents himself for hire as a trained and qualified artisan; and goes on the construction site to exhibits the inefficient skills acquired through

observations from his half-baked mentor and thus perpetrates and perpetuates the cycle of sub-standard craftsmanship and low productivity. Odusami and Ene (2011) further explained that the presence of many poorly trained and inexperienced construction site workers in Nigeria are crucial among the factors responsible for shoddy work output and time and materials wastages on construction sites. Consequentially, remedial works gulps more time and materials which otherwise would have been avoidable. They contended that the unpleasant effects of involving poorly skilled crafts people on construction site works are not limited to initial construction, but some of the effects manifests when the structure is put to use inform of poorly hung windows and doors that will not shut properly, collapsing wall tiles, sagging beams that could eventually lead to the collapse of the structure amongst others. This phenomenon results in end users having to contend with sub standard products that are not user friendly.

The quantitative analysis however revealed that some trades like Glaziers' which is practised by carpenters and joiners in Nigeria construction industry and is not classed as a trade that requires specific or formal training; as well as the Construction labourers' trade which is not considered as of present to be a trade requiring any serious or formal training, are both not seriously affected. The facts still remains however, that adequate training in necessary for all construction trades in order to prevent the ugly outcome and influence of poor training on performance and productivity.

7.2.6 Involvement of Organized Private Sector in crafts skills training

The research surveys also aimed at providing answers to the research question bordering on ways through which the Organized Private Sector (OPS) in the Nigerian construction sector can positively impact craftsmen's training in the nation's construction industry. The different ways by which the OPS can positively contribute to support the training of construction related craftsmen in order to enhance its effectiveness; as informed from the quantitative analysis include:

1. Establishing training schools for CST and development.
2. Sponsoring craftsmen for further skills training.
3. Purchasing tools and equipment for VTIs.

4. Accepting vocational education students and crafts apprentices for work experience.
5. Establishing private vocational training centres for the training of youths in their areas of operation.
6. Organizing regular in-house improvement courses and workshops for existing or available crafts-people in their employment; with the view to developing their skills.
7. Sponsoring of tradesmen for continuous professional development (CPD) workshop and conferences.
8. Getting involved with trade-testing and examination of VTIs' Trainees.
9. Recruiting willing un-skilled youth and adults for CST.
10. Contributing a fixed percentage of annual profit after tax towards TVE.

CST is one primary task which is highly imperative if the Nigerian Building and construction industry is to thrive and be able to accomplish the goal of project delivery to time, cost and to the required quality or standard. TVE is as of now treated by many of the role-players in the nation's construction sector; as been the soul responsibility of the state. The interaction with the qualitative interview participants revealed that a good number of the multi-national and Indigenous construction firms that use to have established training schools for the training of both new and existing staffs in the past have closed down such schools due to economic and other considerations. Rather than invest in the training of construction craftsmen locally, companies in the Nigerian construction sector hire operatives from neighbouring countries of Togo and Benin Republic (Odusami and Ene 2011). Many large and small and medium enterprises (SMEs) construction firms regard training of new workers as unnecessary overhead and a waste of resources in the face of contending economic needs, reduced profit margins and tight project schedules (Awe *et al.,* 2011).

Though some level of cooperation exists between the industry and the VTIs in principle; and the Industrial Training Fund (ITF) attempts to organize staff and students industrial work experience, often there are not sufficient placements for vocational trainees because there is very little employer involvement in the scheme (ITF, 2011). Any attempt towards a viable and effective CST should be a collaborative effort between the government, the industry and the VTIs.

Furthermore, it has been noted that there is increasing support to public tertiary institutions by private companies, usually in the form of endowments and funding of infrastructural facilities. The support is still too low to form a significant proportion of the funding to the institutions (UNESCO, 2010). The Education Tax Fund (ETF) established by the FG, which is a viable source of revenue for the education sector needs to ascribe special attention to crafts skills training. The OPS can demonstrate particular interest in CST as opined by this analysis through; establishing training schools for CST and development, sponsoring craftsmen for further skills training by organizing regular in-house improvement courses and workshops for existing or available crafts-people in their employment with the view to developing their skills, recruiting willing un-skilled youth and adults for CST, establishing private vocational training centres for the training of youths in their areas of operation, accepting vocational education students and crafts apprentices for work experience, getting involved with trade-testing and examination of VTIs' trainees, contributing a fixed percentage of annual profit after tax towards TVE and purchasing tools and equipment for VTIs. These are in line with the opinions in Umar *et al.,* (2009); Umar and Ma'aji (2010), that the private sector should be encouraged to initiate and participate in the provision of facilities for VTIs; and also in consonance with the findings of Abubakar (2010), that government cannot solely bear the burden of TVE without the active participation of the private sector and other stakeholders.

7.2.7 Reasons Nigerian youths are not showing interest in skills acquisition

One of the objectives of this research is to investigate reason(s) why the younger generation in Nigeria is not showing interest in Construction related Vocational Training/Skill acquisition and propose strategies for motivating and mobilizing them. Youths play a very significant role in the economic activities of various nations and especially in the developing countries, but from the development scene in many countries in Africa and in the Nigerian situation a lot still needs to be done in the area of harnessing the possibilities inherent in the youth population; and securing and sustaining their interests in acquiring construction related skills (Joel-Osebor, 2004). With an estimated population of over 150 million people, Nigeria is the most populated black African nation with the youth constituting over a half of the total population (CIA, 2011). In spite of this pool of vibrant youth population and active human resources available to the nation, much has not been achieved in the area of channelling the

available resource to contribute to national economic growth and development. The unemployment rate among the youth is at a galloping dimension; because Nigerian youths either seek after white-collar jobs which are hardly available or venture into other 'quick' money spinning non-skill business like commercial motor-bike transportation business (Awe *et al.*, 2010; Awogbenle and Iwuamadi, 2010; Salami, 2011).

Some of the factors that pose as deterrent to the majority of the younger generation showing interest in acquiring construction related skills; as identified by the quantitative and qualitative data analyses include:

1. Lack of adequate guidance and counselling as to the importance, prospects and relevance of skills as a viable career.
2. Lack of adequate forum for mobilising youth for skills acquisition.
3. Poor remuneration or rate of pay for construction site workers.
4. The social vice of 'get rich quick' syndrome or orientation prevalent in the nation.
5. Lack of encouragement and motivation from the political class and government hierarchy for the youth to take to crafts as careers.
6. Lack of a clear-cut career path for craftsmen.
7. Lack of job security and employment continuity in the Nigerian construction sector.
8. Lack of respect, recognition and dignity for Artisans.
9. Too much emphasis on secular/general education.
10. Lack of adequate provision for the protection and safety of construction site workers.
11. Construction site work viewed by the youth as too degrading
12. View that construction site work is too difficult.

Some of the highlighted reasons as indicated above are focused for further discussion under the following captions.

7.2.7.1 Lack of adequate guidance and counselling as to the importance, prospects and relevance of skills as a viable career.

The absence of appropriate career guidance and counselling for the youth to consider construction related skills acquisition ranked first from the quantitative analysis as one of the

major reasons why the younger generation in Nigeria are not showing interest in choosing craftsmanship as a career, findings from the qualitative enquiry also corroborated this opinion. The greater percentage of the youth population are ignorance and un-informed about the relevance, economic prospects, and importance of acquiring a skill. Durosaro and Adeoye (2007) has decried the neglect of effective guidance and counselling in Nigerian schools, pointing out that the commitment to guidance and counselling as indicated in the NPE is not receiving adequate attention. It is stated in the NPE 1981 edition that "*in view of the apparent ignorance of many young people about career prospects, and in view of personality maladjustment among school children; career officers and counsellors will be appointed in post-primary institutions.....Guidance and counselling will also feature in teacher education programmes*". The 2004 edition of the NPE, though not as emphatic about guidance and counselling as the earlier version; still recognises the importance of guidance and counselling and directed Proprietors of schools to provide guidance counsellors in adequate number in each primary and post-primary schools. It goes without saying that the government recognises the fact that school children need assistance through personal counselling, career education and vocational guidance to discover their innate talents and aptitudes; and to make informed and intelligent career choices. However, Durosaro and Adeoye (2007) have noted that though the nation's education policy takes cognizance of the importance and counselling but the political will on implementation of the existing policy prescription is glaringly lacking. Career guidance counsellors exist at colleges as mandatory requirements, but often those charged with the responsibilities are not professionally trained and not equipped with necessary facilities (Durosaro *et al;* 2009). There is also lack of adequate formal forum for effective motivation and mobilization of youth for crafts-skills training.

7.2.7.2 Poor Image of Construction site Craft Workers

The problem of negative or poor image of construction site work featured in both the quantitative and qualitative analysis as one of the factors deterring the Nigerian youths from acquiring construction related crafts skills. The wide-spread erroneous notion that VET is only for those who cannot do well in secular education discourages many who would have consider skills as a career. Those undergoing secular education are seen as superior and clever in comparison to those in VE, artisans are viewed as second rated citizens and construction site works viewed by the public as dirty jobs. Artisanship lacks the well-deserved dignity of

labour; even the middle level and high level skilled professionals in the construction industry treats the craftsmen without respect. Those in blue collar jobs are accorded more respect, recognition and remuneration than construction sites artisans; hence most youth prefer acquiring skills in IT related fields than in construction related trades. Various past studies have identified the poor image of the industry as an issue which adversely affects the popularity of construction related crafts as a career choice (Green *et al.*, 2004; Dainty *et al.*, 2005; Dainty *et al.*, 2007; Ness, 2009). Salami (2011) described this malaise more vividly by saying that 'there is the general perception that artisans and technicians are "never-do-wells", dropouts, societal rejects or even failures who should perpetually remain at the bottom of the socio-economic ladder'. A corollary of image problem is the view by most youths that construction craft careers are downgrading and demeaning. The poor remuneration of the construction craft workers even aggravates and further tightens the ability of the sector to attract the youth into its crafts categories. The poor image syndrome is a malaise that the construction industry and other stakeholders need to adequately address in order to attract and sustain the interests of new entrants into the industry; especially at the crafts level.

7.2.7.3 Lack of encouragement and motivation from the political class and government hierarchy for the youth to take to crafts as careers.

The necessary good leadership example from many in the political circle seems to leave much to be desired, crave for quick-wealth at the expense of hard work is another social menace pointing the youth in the wrong direction. The social vice of 'get rich quick' syndrome or orientation prevalent in the nation seems not to be pointing the youth generation in the right direction. Salami (2011) ascribed the trend to two cultural related factors of societal misconception about the economic and social status of artisanship and secondly to the fast eroding value system. The Nigerian value system, he argued, appeared to have cultivated a new value system just like the larger society in their quest for making fast money as well as generally moving on the fast lane. The corollary of this trend is the apprenticeship system of skills acquisition of the olden days which is fast disappearing. Gone are the days when a master mason or carpenter would have between four and six apprentices under his tutelage; dedicated to learning the 'knitty-gritty' of the trade. Instead of signing-up for an apprenticeship to acquire a profitable skill, myriads of Nigerian youths jettisoned skills

acquisition and opt for motor-bike transportation business (nick-named Okada or keke NAPEP); with the view to making 'quick cash'. In the same token, those who attempted to acquire skills do not remain long enough to be well grounded in the scheme to acquire marketable skills. The eventual consequent of this trend, if it remains un-checked is that in a few years' time the nation will get to a point when it will be experiencing an acute shortage of skilled artisans (Awe *et al.*, 2010; Odusami and Ene, 2011).

7.2.7.4 Too much emphasis on secular/general education.

The current preoccupation with university education in Nigerian reduces economic opportunities of those who are more oriented toward work than academia. Not everyone needs a university education, but everyone needs a vocation at least for self sustenance. A relevant question is; if everyone became a university graduate, who will do the manual operation for the actualisation of the construction industry's products? Vocational education surely produces graduates who are highly skilled entrepreneurs; VE leads to the acquisition of practical and applied skills as well as basic scientific knowledge. It prepares trainees for gainful employment. CST is directed towards the preparation for occupational life because its recipients are equipped to face the challenges of the world of work (NPE, 2004; Salami, 2011).

Vocational education preparation can be equated to the acquisition of a training experience that culminates in an industrial experience within a work-oriented society and entails the transmission of knowledge and acquisition of occupational related skills or vocation (Ugwuja, 2010); however, an average person in the nation view VE differently. The policy makers seem to have endorsed the crave for further education and acquisition of paper qualifications without the corresponding employable skills; this is evident in a change of policy converting the old TCs to STCs and equating NABTEB certificate with those of WAEC and NECO to compete for FHE. Awe *et al.*, (2009) had earlier posited that if the orientation for the pursuit of paper qualification at the expense of practical skills acquisition is left unchecked, the Nigeria construction industry will be moving towards a situation where it will have many graduates of construction related fields; but insufficient number of skilled craftspeople who

can effectively and efficiently deliver the sector's products. A situation which they argued will be catastrophic for the industry and the nation's economy and development as a whole.

7.2.7.5 Job Security and Site workers' Safety

The issue of job security and health and safety policies in the construction sector seems to be another de-motivating factor to say the least. Construction business in Nigeria is such that only few large (multinationals and indigenous) construction firms engage and retain Artisans and unskilled labour over a long period of time; because they have sufficient number of jobs and could move workers to new construction sites when work on one site is completed. The majority of medium and small scale construction firms hire workers for the job at hand and fire them at the end of the contract. This constitutes a situation where Artisans are not sure of what will happen next, and the insecure nature of employment tends to discourage new entrants into crafts trades in the construction sector in the country.

The attitudes of construction firms to health and safety issues in the construction sector is another major concern that tends to make youths in the nation not to show interest in acquiring construction related skills. Crafts crews on many construction sites work without the necessary personal protective equipment (PPE) and without the necessary insurance cover. Past studies have identified among other things; poorly organised occupational health services, inadequate training on health and safety, wrong attitudes of management towards the health and welfare problems of workers, ineffectiveness of government policy on safety measures especially in construction works, inadequate dissemination of information on safety techniques, non-payment of workers compensation under the health and safety policy and poor example on health and safety measures from management staff of construction firms as issues for concern in the Nigerian construction sector (Jinadu, 1987; Adenuga *et al.,* 2007). These anomalies in practice make the up-coming generation to view construction site works as difficult and undesirable.

7.2.7.6 Lack of a clear-cut career path for craftsmen

Craftsmanship career as it is practised in Nigerian seems to be a dead end without adequate provision for career progression or advancement. The artisans are in most cases not educated to the point that will sustain floating a SME venture. Only few, highly skilled are in permanent employment of large multi-national or indigenous construction firms; while the majority depend on daily-paid engagement. They congregate daily at popular junctions or public areas in major cities with their working tools stacked in sacs waiting for a labour only petty contractor in their trades to come and engage them for the day; and if they are lucky enough, for few days or weeks. After which they are back at their 'junction-office' to join another long queue waiting for the next engagement. Those in regular employment in the good old days could at least advance to become General Foreman (GF) or trade supervisors in their trades, but the modern agenda in the construction industry seems to have transferred such roles to the fresh construction graduates with little or no practical knowledge in the trade. Ness (2009) noted that the construction process is now often managed by degree-trained construction managers without hands-on-experience. Those construction firms that no longer employ skilled operatives do not any longer have a trade base from which to recruit their site managers. The age-old traditional GF, according to Ness, hired and fired, set wages, planned and allocated work, ordered materials, controlled output and quality of work. Today's site managers however has not much control over these things, because in most cases decision about subcontracting and buying are made by others and the degree-qualified construction managers who supervise subcontract packages have no idea what is involved in the practicalities of the work. The tradesmen are hired and fired as works at the hands of the subcontractors demand. Even in the public sector in Nigeria, graduates of vocational related institutions are discriminated against in terms of wages and career progression (Salami, 2011). The professional bodies are also culprits in this, for example, a look into the CIOB membership framework shows no clear career progression path for craftspeople, and similarly, the Nigerian Institute of Building (NIOB) for instance, in section 5.5.9 of its Constitution reflects two categories for Craftsmen and Artisans. Section 5.5.9.1 says *'for admission to Craftsmen Cadre, a candidate shall be a person who works on building projects and has formally attained a standard of Vocational Education and Training in a Building Trade; while section 5.5.9.2* states *'for admission to Artisans Cadre, a candidate shall be a person who holds a certificate of apprenticeship from a master artisan'.* (NIOB, 2009). A

critical look at the provision reveals that though the institution has provision for the registration of tradesmen, the constitution is not distinct on their membership progression. The provision for the registration of trades-people in the constitution and membership framework of the NIOB seems not seriously pursued but is rather in creed than in deed (CIOB 2011, NIOB, 2002).

The lack of interest in acquisition of construction related crafts skills among the Nigerian youths is evidently contributing to crafts skills shortages in the construction sector both in terms of quality and quantity. Some of the reasons for crafts skills shortages in the sector have been found to include: low wages, absence of a clear career path, conversion of vocational training colleges into glorified secondary schools where attention is on acquisition of theoretical knowledge at the expense of employable craft skills, high attrition rate of skilled construction crafts workers into other businesses perceived to be more lucrative, poor funding of the practical aspects of vocational education resulting in poorly equipped training workshops, inadequate trained staff and lack of organized apprenticeship schemes among others (Awe *et al.,* 2010; Odusami and Ene, 2011).

7.2.8 Strategies for mobilizing youths for skills acquisition

In an attempt to explore possible solutions to the problems deterring the Nigerian youths from given considerations to skills acquisition as identified in section 7.2.7; the quantitative survey presented postulations on possible strategies that could be adopted for the mobilization and motivation of the youth generation. The analysis of quantitative data elicited from the respondents on the postulations and supported by the qualitative enquiry underscored the following as approaches that could enhance and sustain the interests of youths in acquiring construction related crafts-skills:

1. Making craftsmen wages attractive.
2. Proper funding of TVET.
3. Making career guidance and counselling mandatory at the junior and secondary school levels.
4. Making general education practical skills oriented.
5. Recognition of TVE and ensuring dignity of labour for craftsmen.

6. Making crafts-skills trainees earn while they learn.
7. Make CST or TVE free for willing youth
8. Make skills instruction mandatory at junior and senior secondary education levels.
9. De-emphasizing non-skilled general education.

Inadequacies in the wages of craftsmen in the Nigerian construction industry as well as other sectors of the economy is an issue for concern, construction craftsmen in Nigeria are poorly rated (see section 7.2.7); the quantitative data analysis revealed that good wages for construction related craftspeople will be a good, motivating incentive for the youth generation to consider skill acquisition as a profitable option.

The issue of poor funding of VE was identified as one of the problems militating against the effectiveness of TVE (see section 7.2.3); the data analysis under this section suggests adequate funding of VE as a tool that will make skills acquisition attractive to the Nigerian youths. If the VTIs are adequately funded and well equipped with modern tools and other necessary facilities that will make CST facilitating and stimulating; many unskilled youths and adults will definitely develop changed attitudes towards skills acquisition, because this will make VE more lucrative and attractive to the prospective new entrants into the various construction related trades. If a good proportion of the Petroleum Trust Fund (PTF) is allocated towards funding of VET and the Organized Construction Industry Private Sector (OCIPS) also shares in the burden of funding construction skills training; the funding problems of the scheme will be solved a great deal.

Absence of effective career guidance and counselling was a highly ranked factor on the data for the reasons why youth are not showing interest in acquiring construction related skills. The quantitative data analysis under this section is of the opinion that career guidance and counselling be made mandatory at the secondary education level, not just in creed but in deed; for the purpose of sensitizing the younger generation on the profits and benefits of skills acquisition.

The analyses shows that making general education practical skills oriented and making skills instruction mandatory at junior and senior secondary education levels; will be a move in the right direction towards securing the interests of the youths, and motivating them to consider

skills acquisition as a worthwhile venture. The practice of emphasizing non-skilled general education above vocational education will also need to be changed. The curriculum of the JSS structured towards training in integrated science and introductory-technology to provide a good academic and vocational basis for students at the junior secondary level is a right step, however, specific skills appreciation trainings will have to be considered with the view to positively influencing the students to develop interests in certain crafts from the early stages of their secondary education.

The analyses further opine that giving more recognition to TVE, ensuring dignity of labour for craftsmen, making crafts-skills trainees earn while they learn, and making CST or TVE free for willing youths will be potent tools and effective strategies for motivating and attracting the younger generation to developing interests in acquiring construction related skills. Myriads of able bodied youth wanders aimlessly in urban centres all over the country looking for gainful employments; many of these youth will be willing to get trained if they are sure of earning to sustain themselves while learning a skill. Every possible effort will need to be directed towards motivating and recruiting many of them for training in certain vocational skills. Craft skills training for the youths will be a good strategy for economic empowerment, stemming the rate of crime and curbing youth restiveness in various parts of the nation. Some past studies in this direction have highlighted similar strategies for tackling artisans skills shortages, motivating and mobilising youths in Nigeria for vocational skills acquisition and venturing into entrepreneurship world (Joel Osebor, 2004; Omoruyi and Osunde, 2004; Odusami and Ene, 2011; and Salami, 2011).

7.2.9 Possible avenues for recruiting youths for skills acquisition

As a follow-up to the identification of the problems preventing the youth form developing interest in skills acquisition and the approaches to securing their interests (sections 7.2.7 and 7.2.8); the quantitative survey also sought opinions on the available avenues through which the youth could be effectively reached for the purposes of mobilization for CST. The quantitative analysis of the data elicited for this purpose indicates reaching-out to the youth generation through:

1. Allied Construction Industry Professional Bodies (ACIPBs)

2. Local Government Council Areas (LGCAs)
3. Youth Associations and Clubs (YACs)
4. Senior Secondary Schools (SSS)
5. Junior Secondary Schools (JSS)
6. Crafts Trade Unions (CTUs)
7. Parents/Teachers' Associations (PTAs)
8. Religious Organizations and Groups (ROGs)
9. Social Groups and Clubs (SGCs)

Data elicited through the qualitative enquiry also endorsed most of the possible strategies listed above as practicable and possible means or avenues for reaching out to the youth generation for the purpose of mobilising them for skills acquisition in the construction industry.

The various professional bodies in the Nigerian construction industry along with their registration councils have the common goal of rendering services for the provision of relevant infrastructural facilities for national development. The registration boards are statutorily established by the Federal Government (FG) and regulate professional practices in the industry; these registration councils can work in collaboration with the ACIPBs along with other role players in the sector to organize forum for reaching out to the youth and sensitising them on skills acquisition.

YACs are in most cases vibrant and relatively coordinated and could provide a good link for reaching out to mobilize the youth for the purpose of recruitment for CST.

Nigeria has 774 LGCAs which are regarded as grass-root government closer to the people than the State Governments (SGs); these in collaboration with other stakeholders could be very helpful in reaching out to the youths by organizing enlightenment campaigns to educate the youth generation on the benefits inherent in acquiring skills.

PTAs exist in both the public and private JSS and SSS; collaborative efforts of these bodies can be a potent strategy for getting across to the younger generation on this all important subject of craft skills training.

Greater percentage of the Nigerian population identifies with one religion or the other; this makes the ROGs to be another force to be reckoned with in the moves towards youth mobilisation for skills training.

There are also well established and highly reputed SGCs (such as the Rotary Club International, Lions and Lioness' clubs) with global affiliation and interests with reputable memberships spread across all the parts of the country that could have positive influences on the younger generation; these SGCs can organise programmes in collaboration with other stake holders to enhance attitudinal change among the youth and redirect their visions towards skills acquisition.

7.2.10 Crafts training strategies to address skills shortages in Nigeria

The quantitative survey also sought data on possible strategies that could be adopted for training and producing needed craftspeople in the Nigerian construction sector; with the view to effectively addressing crafts skills shortages. Possible options as expressed by the respondents and corroborated by the interview participants are presented below:

1. Involving the construction companies in CST.
2. Establishing special apprenticeship CST centres for the training of construction related crafts.
3. Mobilizing unskilled youth generation for CST.
4. Re-introducing the apprenticeship training scheme (ATS) and making it effective.
5. Re-training the existing crafts crew.
6. Adopting multi-skilling method in the training of fresh crafts trainees.
7. Making secondary education skill-based.
8. Grouping construction sub-contractors for the purpose of CST.

Any worthwhile approach towards crafts training to address skills shortages in the Nigerian construction industry must take cognizance of the involvement of registered construction companies in CST. The non-commitment of the non-public sector in crafts training and development has hitherto been one of the banes of producing the needed crafts-people for the construction sector (as identified in section 7.2.3); with its attendant effects on the

productivity of the sector and the overall development of the nation's economy (Odusami and Ene, 2011; Salami, 2011; Muya *et al.*, 2006). The analysis here identified the involvement of construction sector in CST as paramount in the training of craftsmen for the industry.

Establishment of special apprentice craft-skills training centres by the construction sector for particularly and adequately addressing the crafts training needs of the sector will go a long way in tackling the shortages of skilled craftsmen in the nation's construction sector. Adopting the relevant identified methods (see section 7.2.8) and exploring the various avenues (section 7.2.9) for youth mobilisation and recruitment for CST in the construction skills special training centres will facilitate the training of competent crafts-people on regular basis.

Re-training the existing crafts crew for the purpose of updating and up-skilling them to meet up with the prevalent innovations in the sector; while adopting multi-skilling approach for the training of new craftsmen were also suggested by the analysis as possible options for addressing crafts skills shortages in the Nigerian construction sector.

The quantitative analysis of data on strategies for motivating youths to develop interests in skills acquisition indicated that making general education practical skills oriented will be a viable option (see section 7.2.8). Similarly, the data on strategies for training and development of competent skilled craftsmen for the Nigerian construction industry under this section supports making secondary education skill-based as a favourable option for tackling skilled trades-people's shortages in the sector. The implication of these findings is that craft-skills training needs to be given the necessary attention in the nation's educational system, especially at the secondary education level; as a strategy for building good footings for skills development.

Apprenticeship training schemes, both formal and informal, were found to be effective strategies for the training and production of needed competent craftsmen for the construction industry both previously and currently (see section 7.2.1 and 7.2.2). Re-visitation of the schemes with necessary modifications to overcome impeding shortcomings is supported by this analysis as a possible solution for addressing skilled craftsmen's shortages in the construction sector.

7.2.11 Agencies for quality assurance in construction Crafts training

In order to adequately address this important task of effective training and production of competent and confident craftsmen and women for the Nigerian construction industry; the subject of ensuring quality assurance (QA) and appropriate benchmarking become highly imperative. Findings from the quantitative analysis of relevant data on strategies for QA and benchmarking of CST are presented and discussed under this section. The survey explored the various viable options on agencies or organizations that could get involved or be vested with the responsibilities for QA, benchmarking and accreditation of CST in the nation's construction sector. The quantitative data suggested combination of efforts by some of the following agencies:

1. Organized Construction Industry Sector (OCIS).
2. Nigerian Construction Industry Training Board (NCITB).
3. Vocational Training Institutes (VTIs).
4. Allied Construction Industry Professional Bodies (ACIPBs)
5. National Board for Technical Education (NBTE)
6. National Construction Apprenticeship Training Board (NCATB).
7. Federal Government Ministry of Labour and Productivity (FMLP)
8. Local Government Education Boards (LEDs)
9. State Government Education Boards (SEBs)

Within the present education system of the Federal Government of Nigeria (FGN), the Federal ministry of education (FME) and its appropriate agencies see to QA at the various tiers of education (NBTE, 2011). The NBTE in particular regulates and accredits academic programs in TVE colleges and at other levels of technological education. The various ACIPBs also organises accreditation visits to relevant departments that offer professional courses at the Polytechnic level; with the view to maintaining QA and ensuring that the curricula are relevant, up to date and of acceptable standard.

CST in the construction industry will need to be adequately monitored for QA purposes. The quantitative data analysis supports the involvement of the OCIS and the ACIPBs in the QA and benchmarking process of construction crafts training programmes to represent the

industry sector. These bodies can collaborate with the VTIs to ensure that the trainees are exposed to the required practical site work experiences. The FMLP, SEBs and the LEDs can have representatives on the QA teams to represent the government's interest to enhance policy issues; while the NBTE concentrates on QA for the middle-level manpower training programmes.

Government agencies and departments dealing with TVE and national councils or boards usually lead the policy development process and balance the interests of all the parties concerned; consideration will need to be given to the formation of statutory bodies such as the Nigerian Construction Industry Training Board (NCITB) or a National Construction Apprenticeship Training Board (NCATB) for this purpose.

The implication for QA from the analysis is that a joint or collaborative effort is necessary for ensuring effective QA monitoring for CST in the construction sector in Nigeria.

7.2.12 Agencies for examination of and certification

The quantitative survey also made enquiries into possible agencies that could be charged with the responsibility for the examination and certification of the Nigerian construction sector's crafts-skills trainees. The data analysis and findings on the suggested agencies are presented and discussed under this section. The favoured agencies for examining construction crafts trainees and certifying the graduates from the quantitative and qualitative analyses include:

1. Vocational Education Examination Board (VEEB).
2. Vocational Training Institutes (VTIs).
3. Apprenticeship Scheme Examination Board (APSEB).
4. National Business and Technical Examination Board (NABTEB)
5. Federal Ministry of Labour and Productivity (FMLP).
6. State Ministries of Labour and Productivity (SMLP).
7. Federal Ministry of Education (FME).
8. State Ministries of Education (SME).

With the present structure of the Nigerian system of education, the Junior Secondary School Certificate (JSSC) is issued by the National Examination Council (NECO) at the end of the JSS after due examination, The Senior Secondary School Certificate (SSSC) is issued by the West African Examinations Council (WAEC) and the NECO. The National Technical Certificate (NTC) and the Advanced National Technical Certificates (ANTC) are awarded by the NABTEB at the end of the two-tier system of vocational courses offered by the FGTCs. The lower level program which is equivalent to the SSCE lasts three years after JSS, while the advanced program entails a minimum of one year pre-entry industrial work experience and ranks on the lower tertiary education level (WENR, 2004; NABTEB, 2011). The VTIs input in the examination and certification is in the form of administering the continuous assessments of the vocational trainees. The arrangements for the examination and certification of Construction Crafts Skills Training (CCST) schemes which will focus on the training and development of construction industry tradesmen and women can be a separate arrangement from the existing arrangement where the NABTEB examines and certifies TCs and STCs students. There would be the need for the creation of a Construction industry crafts examination board (CICEB) or a construction industry vocational education examination board (CIVEEB) as opined by the data analyses, with representatives from the FG, ACIPB and the OCIS; so as to allow for adequate monitoring, control and QA.

7.2.13 Chapter Summary

The chapter elucidated on the findings from the quantitative data analysis presented in chapter 5 and the qualitative data analysis presented in chapter 6 of the report. The chapter opened with the explanation of the basis for the discussions of the findings from the quantitative and qualitative data analysis. The adopted approach was the clarification of the emerging research findings under various themes which include; the past and present crafts training methods in the Nigerian construction industry, factors affecting the effectiveness of CST and its attendant effects on crafts practice in the Nation's construction sector. The effects of non participation of the CIPS and the prospects of its effective participation in CST were also addressed. The identified factors which served as deterrent to youth interests in skills acquisition were also elaborated and the strategies and possible avenues for motivating and mobilizing the youths for skills acquisition adequately addressed. The discussion chapter also touched on the

possible approaches as suggested by the quantitative and qualitative data analyses addressing crafts skills shortages in Nigerian construction sector along with possible modalities for implementation, QA, examination and certification of CST students and graduates. The discussions were adequately supported by emerging findings from relevant past studies as appropriate. The chapter is very significant because serves as precursor to the formulation of the framework for effective training and development of construction crafts in Nigeria, which is the focus of chapter 8 of this report.

8.0 Construction Craft Skills Training and Development Framework

8.1 Introduction

Chapters 5 and 6 of this study report present the results of findings from the quantitative and qualitative data analysis respectively, while chapter 7 discourses the findings from both analyses. This chapter presents the framework for training and development of construction crafts skills in the Nigerian construction sector based on the findings from the primary and secondary data; thus articulating and integrating the issues emanating from literature, pilot study, document analysis, questionnaire survey and interview enquiry. The chapter commences with the discussion of the sources of data for the framework development, this is followed by some basic assumptions and key findings which serve as pedestal for the framework. The selected construction crafts trades groups for which the framework is targeted are highlighted and the various constructions related professional bodies, registration boards and relevant construction industry's organization whose inputs are deemed imperative in the implementation of the framework are mentioned. The CCST and Development framework is presented in detail under various headings followed by the framework validation report; the chapter concludes with a chapter summary.

8.2 Sources of Data for the Framework

The methods employed for the data collection for the research project include both primary and secondary approach. The secondary data were elicited through extensive literature search which identified relevant issues on problems of vocational training and education (VTE) and its effects on construction related crafts skills in the Nigerian construction industry. The issues that emerged from the literature review were precursor to designing the questionnaire for the primary data collection. The questionnaire survey was conducted with representatives from the six geo-political zones of Nigeria. The respondents to the questionnaire were mainly construction industry related professionals which include Builders, Architects, Quantity surveyors, Civil/Structural Engineers, Construction related Vocational/Technical Educators including tertiary education teachers. Other construction sector's role players

represented in the survey include Estate surveyors and valuers, Urban and Regional planners and construction related trainees and students representing the views of the Nigerian youths in the survey. The professional practice areas of the respondents to the survey cut-across: Construction/Project Management, Building Process Coordination and Management, Consultancy, Contracting and Construction Craftsmanship. The data elicited through the survey was analyzed using appropriate quantitative research technique. As a second source of primary data in order to further clarify some of the findings from the questionnaire survey, telephone interview was conducted with seven (7) selected stakeholders. The data gathered through the interviews was analyzed using relevant qualitative research analysis technique. Further source of primary data to better ascertain the prevalent issues on previous interventions and plans on vocational education, and to further appreciate the problems confronting construction related crafts skills' training in Nigeria was explored using the document analysis approach. The main document selected for exploration was the Federal Republic of Nigeria's National Policy on Education (NPE) 2004 edition. Other documents explored for analysis include those sourced from the websites of education and training, funding and examination agencies, namely:

- National Board for Technical Education (NBTE) with focus the roles of the NBTE in Vocational Education and Training (VET).
- Available documents on Vocational Enterprise Institutions (VEIs), Innovation Enterprise Institutions (IEIs), Technical Colleges and Science and Technical Colleges sourced from NBTE's website.
- Documents on the vocational education examination board - The National Business and Technical Examination Board (NABTEB) sourced from NABTEB's website.
- Relevant documents sourced from Industrial Training Fund's (ITF) website
- Relevant documents sourced from Education Trust Fund's (ETF) website
- Relevant documents sourced from National Directorate of Employment's (NDE) website
- Relevant documents sourced from National Poverty Eradication Programme's (NAPEB) website.

Reference was also made to the Nigerian National Economic Empowerment and Development Strategy (NEEDS) document and the FGN Vision 20:2020 draft document.

Chapter 3 of the Thesis also focused on exploration of crafts skills training strategies in use by selected developed and developing countries, with the view to gaining insight into possible approaches that might be applicable to the training and development of construction related crafts in the Nigeria construction sector; considering the economic, social, political and cultural setting of the nation.

Based on the analyses of data gathered from the various sources, a framework for enhancing the effectiveness of construction crafts skills training and development in the Nigerian construction industry was developed as a guide for the sector's crafts skills training and development. Figure 8.1 presents an illustration of the sources of the data that served as pedestal for formulating the Construction Crafts Skills Training and Development Framework (CCSTDF) which is presented in detail under this section of the report.

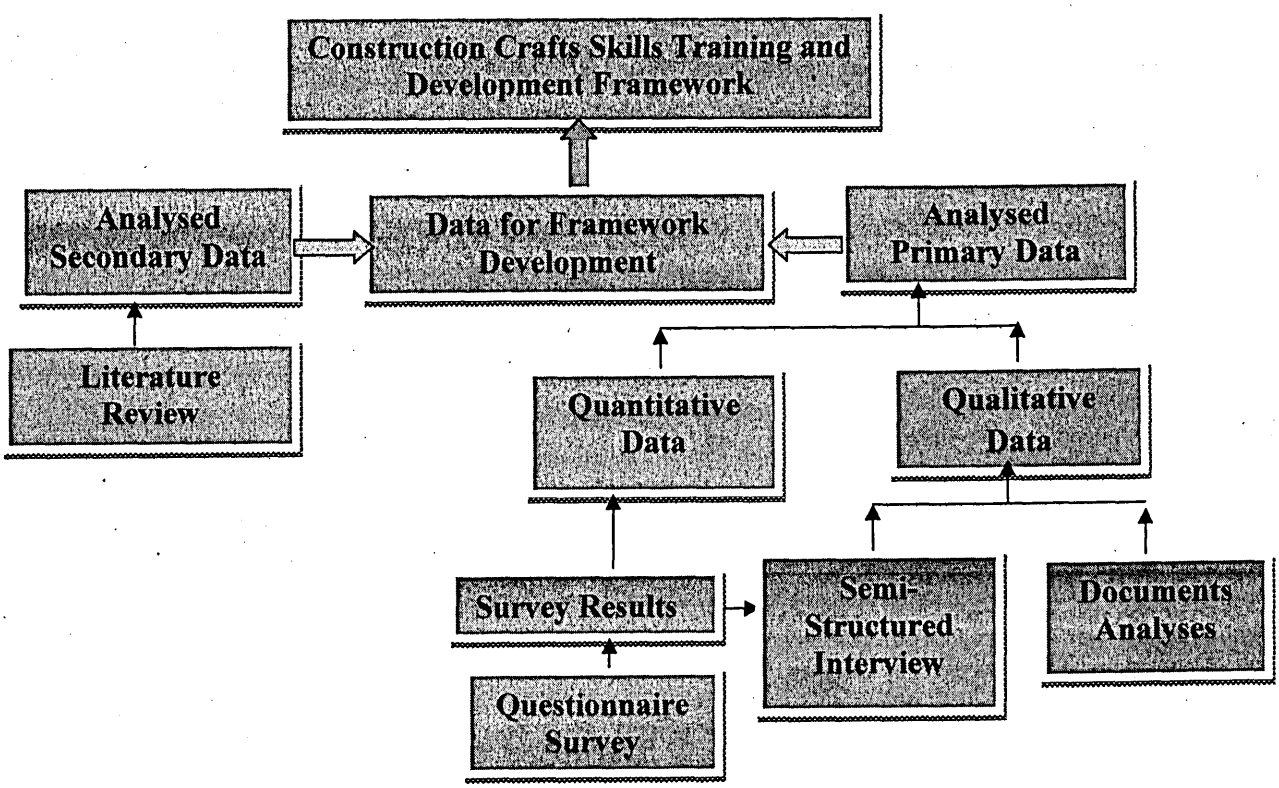

Figure 8.1- Model illustrating sources of data for CCSTD Framework formulation

8.3 Background Information to the Framework

The proposals in this framework are premised on the discoveries from literature, quantitative and qualitative surveys conducted in the course of the research; and structured around the research aim and objectives.

The recommendations in the framework are further informed by the research findings discussed under the following sections:

8.3.1 Government past efforts and reforms on crafts skills training (CST) and youth empowerment.

The Federal Government of Nigeria (FGN) has over the years embarked on different types of programmes and reforms aimed at equipping the Nigerian populace and youths in particular, with employable vocational/craft skills with the view to producing sufficient numbers of skilled crafts workforce to meet the labour need in the nation's industrial sector. These programmes were also geared towards ensuring youth empowerment, promoting entrepreneurship and eradicating poverty. Examples of such attempts are:

1. The establishment of the **Industrial Training Fund (ITF)** as far back as 1971 as a manpower agency of the FGN under the aegis of the Federal Ministry of Commerce and Industry, with the primary goal of imparting technical skills to workers in the industrial sector of the nation. The ultimate aim of establishing the ITF was to address the problem of dearth of skilled workforce, especially in the Artisans' category. The objective of the body includes promoting and encouraging the acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained manpower sufficient to meet the needs of the economy. Services planned in the ITF schedules include:

- Administration of the Students Industrial Work Experience Scheme (SIWES)

- Development of human resource information and provision of training services to industry and commerce to enhance manpower capacity and in-house training delivery effort
- Vocational and Apprentice Training
- Direct manpower development Training

2. The National **Directorate of Employment's (NDE)** national Youth Employment and Vocational Skills Development programmes designed to benefit the younger population which include:

- The National Open Apprenticeship Scheme (NAOS)
- Waste to Wealth Scheme (WTWS)
- School on wheels Scheme (SOWS)

3. The **National Poverty Eradication Programme's (NAPEP)** national poverty alleviation initiatives geared towards reducing youths' unemployment such as:

- The Youth Empowerment Scheme (YES) -focused at providing unemployed youth with opportunities for skills acquisition, and developing capacities for employment and wealth generation. The NAPEP's Quality Education Programme (QEP), Capacity Acquisition Programme (CAP), Mandatory Attachment Programme (MAP), and Credit Delivery Programme (CDP) all had the primary aim of promoting skills acquisition to curb unemployment and address crafts skills shortages in the nation's industrial sector.

4. Another reform or effort of the FGN aimed at promoting crafts skills acquisition was the approval of private owned Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) primarily aimed at encouraging skills acquisition by widening access to Technical/Vocational Education and Training (TVET), meeting the crafts skills need of the industry sector and enhancing self-empowerment of the citizenry.

5. The nation's Ministry of Housing and Urban Development, in a bid to increase the stock of skilled manpower at the Artisan's level had also in the past embarked on construction crafts skills training programme; in selected core construction related trades including draughtsmanship. Even though the scheme helped in training some Architectural draughtsmen and women and was able to impart basic knowledge and skills in selected construction related crafts; organizational deficiencies and inadequacies in the coordination of the scheme hindered continuity.

All the above reforms and attempts not withstanding, the problems with the training of competent crafts workforce to counter the prevalent skills shortages and knowledge gap in the nation's industrial sector (especially in the construction sector) still persist; due to defective implementation, deviation from the original plans and loss of focus (Dike, 2009; Salami, 2011).

8.3.2 Nigerian Education and Training system and the missing link

The Nigerian system of Education and Training is well laid out and structured originally towards what was obtainable in the UK and other parts of the world. The 6:3:3:4 (now 9:3:4) system of education in Nigeria is geared towards the training and production of vocational crafts skills and middle level technical manpower (at secondary 'technical colleges' and polytechnic) education levels respectively (NPE, 2004). However in the actual implementation, the education agenda is directed towards preparing the trainees for the apex; which is university education. The system end-up training 'highly skilled' (in most cases, without the needed practical skills) manpower for the industrial sector; but to the neglect of training the necessary craft skills needed for the actualization of the industrial sector's products. Thus indicating a 'missing-link' in the training and production of craftsmen and master craftsmen that should promote sustainability in crafts skills training and development in the nation's industrial sector (Awe, 2004; Dike, 2007). Figure 8.2 illustrate this scenario.

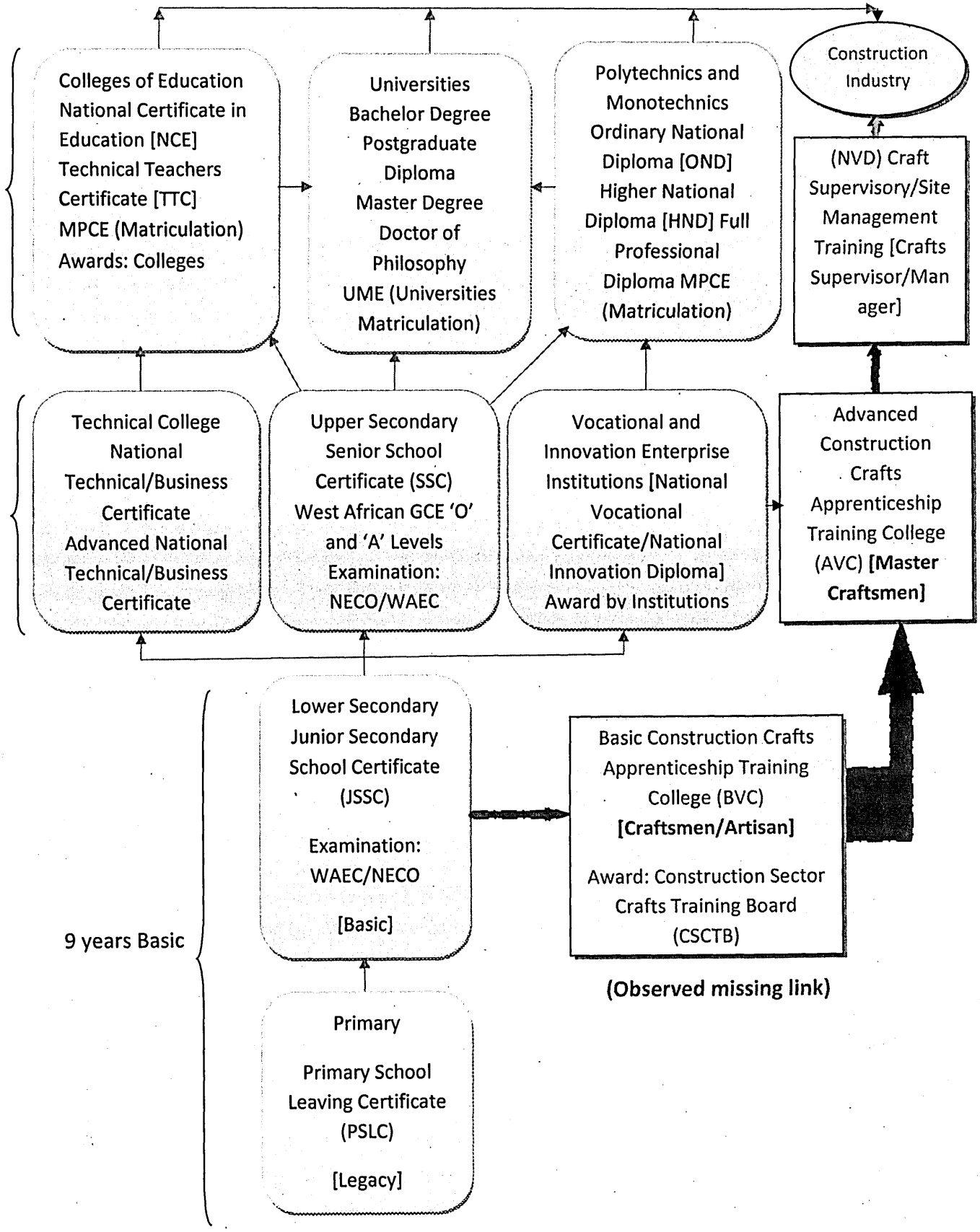

Figure 8.2– Current Nigerian (9:3:4) Education System and the missing Construction Crafts Skills training link

8.3.3 The National Board for Technical Education (NBTE)

Findings from the qualitative enquiries and document analysis opine that the NBTE has a seemingly overarching role to play in the TVE agenda of the nation and trying as much as possible, within the available resources to attain to the vision and accomplish the mission. The emphasis of the Board has, however, been much centred on the highly skilled technical and professional manpower aspect of TVE; with less focus on vocational education to produce semi-skilled, sub-professional trades-people much needed for production in the construction industry and other industrial sector. Data available from literature (Aina, 2000; Nnoli, 2001; Atsumbe, 2002; Puyate, 2002; Asilokun, 2004; and Ndomi, 2005) and primary data from interview enquiry in the course of this study; agree to the fact that the NBTE is far from achieving its designed purpose, vision and mission and consequently the planned objectives for the nation's TVET agenda. Considering the fact that the construction industry is one of the major drivers of economic development and one of the highest employer of labour; coupled with the high volume of housing need of the nation (CGI, 2011); the training of construction craft-skills deserves a more focused attention so that the needed tradesmen and women are available for the sector's operations.

8.3.4 The National Business and Technical Examinations Board (NABTEB)

The NABTEB was established to take over craft level examinations which were up till its establishment conducted by UK based examination bodies; the City and Guilds of London Institute (CGLI), Pitman's, and the Royal Society of Arts (RSA). In analysing the content of the stated roles of NABTEB as an examination body; it is evident that the underlying motive and objective for its establishment is to conduct crafts related examinations. However, the problem of inconsistency in policy implementation and abandonment/truncation of TVET policies as identified by the quantitative and interview data analyses has resulted in having NABTEB to compete with NECO and WAEC in the award of certificates for university education aspirants; rather than examine and certify craftsmen and women for the nation's industrial sector.

Similarly, the Trades Testing Certificate Schemes (TTCS) organized by the Federal Ministry of Labour and Productivity is also found from the primary data gathered; to have been greatly compromised.

8.3.5 Factors militating against the effectiveness of vocational training and education in Nigeria

The proposals in the framework also took cognizance of factors militating against the effectiveness of Vocational Education and Training in producing needed competent skilled craftsmen for the Nigerian industrial sector. These include:

1. Low budgetary allocation and poor funding
2. Absence of quality practical skills contents in the training of technical and vocational colleges trainees.
3. Equipment obsolescence and absence of modern training equipment in technical and vocational training institutions
4. Insufficient participation and non-commitment of the industries' organized private sector to crafts skills training and development.
5. Lack of cooperation from indigenous and multi-national firms with training institutions (in facilitating student industrial work experience- 'SIWES' by offering placement to students). The percentage of students in relevant placement is very low.
6. Policy deviation - e.g. the vocational route to crafts skills training in the National Policy on Education has been compromised.
7. Absence of detailed and specific crafts skills training framework for the training and development of vocational trades careers for the industrial sector (the construction sector in particular).

The framework also acknowledges the fact that the problems facing crafts skills training in Nigeria affect the production of capable crafts crew for the nation's construction industry both quantitatively and qualitatively. The factors militating against the effectiveness of crafts-skills or vocational training have implications for both the standard or quality of works as well as the quantity or number of competent artisans supplied to the Nigerian construction industry. The problems confronting VET in the nation deprive the trainees the knowledge, skills and competencies (KSCs) they suppose to acquire in the course of their training; and consequently affects their productivities and performances after graduation, in form of low standard job-output (Odusami and Ene, 2011). This makes them lack the confidence to operate without close supervision and monitoring, renders them un-employable and incompetent to become self-employed. The factors militating against crafts skills training (CST) are responsible for the influx of construction related crafts skilled foreign workers into the nation's construction sector, this aggravates the un-employment problem in the country; because foreign trained migrant craftsmen do the works that indigenous craftsmen could have been doing if they had been available in sufficient quantity, well grounded and competent enough.

8.3.6 The importance of the construction sector and skills training challenge

The Nigerian construction sector is relevant and important to the nation's economy because it engages a substantial percentage of the nation's labour force; and as a developing economy the construction process is labour intensive (especially in the crafts skills cadre). The number of competent skilled operatives is very small relative to demand; the majority of the craftsmen are trained through the informal apprenticeship scheme which lack standard and produce 'half-baked' craftsmen. Those trained in the technical colleges lack the basic skills to make them 'trainable' for skilled employment; because of inadequate training facilities and lack of exposure to practical work during their training (Umar and Ma'aji, 2010). Many of the large construction firms import skilled operatives from other countries to fill the gap; this in turns add to their operating costs and reduce profit margin. Considering the developmental agenda of the nation as occasioned by the NEEDS, SEEDS and indicated in the Vision 20:2020 draft document

(CGI, 2011; FGN, 2010), the relevance and importance of the construction sector to goals realization becomes more obvious.

8.3.7 Construction sector's vocational crafts skills need

The skills of all the role-players in an industry determine the quality of its products. In the building and construction industry, semi-skilled and unskilled workers form a large part of the labour supply and they perform various tasks, which eventually determine the quality of products (Akindoyeni, 2007; Obiegbu, 2007). Construction related craftspeople play primary and prominent roles both in new projects and in the running and maintenance operations throughout the life cycle of the construction industry's products. There is need for the training of creams of competent crafts workforce with the view to raising sufficient numbers to meet the skilled crafts manpower need of the sector, improve performance and enhance the overall growth of the sector. Insufficient number as well as incompetence of the available crafts workforce in the sector presently hinders the delivery of 'value for money' (VFM) which is a major goal of the industry. Findings from the study revealed that there is currently a shortage of skilled construction crafts people in the nation's construction sector; this has been responsible in most cases for poor quality works, low productivity, resource wastages and poor performance of the sector in products delivery in terms of time and cost (Awe *et al,* 2010; Odusami and Ene, 2011). The wide range of skills needed in the construction industry coupled with the planned massive investment in construction as implied by the FGN's Vision 20:2020 draft document (FGN, 2010) calls for proactive actions in ensuring that competent skilled operatives are available both qualitatively and quantitatively to meet the industry's demand; however, there seems to be evident shortfall in the number and quality of tradesmen being trained to satisfy the challenging requirements.

8.3.8 Problems of dearth of new entrants into construction crafts career

The proposals in the framework are also informed by the findings from the various surveys conducted in the process of the study which show that Craft skills training

programmes (especially construction related craft) are not attracting new entrants because:

- Crafts people are stigmatized, not recognised or respected due to the poor or negative image the public hold about crafts careers;
- Crafts skills are viewed as careers for drop-outs;
- Crafts-men are poorly remunerated;
- Construction crafts are mostly viewed as difficult; and due to
- Lack of job security in the construction sector; and
- Lack of clear career path for advancement

8.3.9 Youth's apathy to the choice of construction crafts as careers

Youths play a significant role in economics activities in developing countries, even in developed economies; the role of the youth population in national economic development cannot be undermined or relegated to the background. However, in Nigeria, myriads of youths remain without employable skills and unemployed; while their youthful zest remains untapped (Salami 2011). Nigeria as a developing country and the most populated black African nation with an estimated population of over 150 million people (CIA, 2011) needs an array of developmental projects and social facilities such as public housing, schools, hospitals and other infrastructural facilities. According to CIA (2011) estimate, the youth population constitute about half of the total population. Despite this pool of active and vibrant human resources, craft skills shortage and knowledge gap persist in the construction sector and much has not been accomplished in the area of channelling the useful resource to contributing to overall economic development of the nation. Apart from the identified problems responsible for the dearth of new entrants into construction related trades highlighted in section 8.3.8, other identified reasons why Nigerian youths are not indicating interest in construction related skills acquisition include:

- Lack of adequate guidance and counselling as to the importance, prospects and relevance of crafts skills as viable and profitable careers.
- Lack of adequate forum for mobilising youth for skills acquisition.
- The social vice of 'get rich quick' syndrome or orientation prevalent in the nation.

- Lack of encouragement and motivation from the political class and government hierarchy for the youth to take to crafts as careers.
- Too much emphasis on secular/general education.
- Lack of adequate provision for the protection and safety of construction site workers.

8.3.10 Youth motivation and mobilisation for construction crafts skills training

Findings from the study underscore the need for devising strategies for motivating and mobilising the youth for crafts skills training. The framework recognises the need for a collaborative effort of the government; the construction industry and other public and social institutions and organisations in the task of mobilising and reaching out to the youth for the purpose of recruitment for Construction Crafts Skills Training (CCST).

8.3.11 National Policy on Education and the Construction Industry Crafts Skills need.

Sub-section 40 of NPE (2004) states that Technical/vocational education (TVE) is used as a comprehensive term referring to those aspects of educational process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. The section further highlights TVE as:

- an integral part of general education
- a means of preparing for occupational fields and for effective participation in the world of work
- an aspect of lifelong learning and a preparation for responsible citizenship
- an instrument of promoting environmentally sound sustainable development and a method of alleviating poverty

Findings from this research however revealed that at the secondary education level; there are no adequate provisions to enhance the impartation of vocational skills that prepare trainees for the immediate world of work that could promote economic viability,

poverty alleviation or sustainable national development as of now; especially, as far as the construction sector related crafts are concerned.

The NPE further proposes that the preparatory aspect of pre-vocational training would be offered to students at the junior secondary level for the purposes of:-

- introduction into world of technology and appreciation of technology towards interest arousal and choice of a vocation at the end of Junior Secondary School and professionalism later in life.
- acquiring technical skills.
- exposing students to career awareness by exploring usable options in the world of work; and
- enabling youths to have an intelligent understanding of the increasing complexity of technology.

Contrary to the above proposal however, what is practiced in the system as of now is the teaching of introductory technology at JSS level. There are no provisions for necessary and enabling facilities such as workshops, laboratories, tools and practical work tools and equipment to facilitate the accomplishment of any of the above in conventional secondary and most technical schools. The schools are not adequately equipped to enable students acquire the needed basic vocational or technical skills.

Considering the important roles played by the construction industry in the economic growth and overall development of the nation, coupled with the sector's crafts skills need; it is evident that addressing skills training in general and lumping construction crafts skills training under general VET agenda as it is presently in the NPE will not solve the sector's crafts skilled workforce need. The training of construction related craft skills people requires special and particular attention in order to meet the craft skills need of the sector.

8.3.12 Vocational Crafts Training Methods

The prevalent training methods for producing skilled crafts-people for the Nigerian construction industry as indicated by the study findings include:

1. The informal apprenticeship schemes (which is found to be confronted with the following shortcomings):

- the informal apprenticeship is dying out because Trainers are ageing; there is now a dearth of Trainers.
- the informal apprenticeship crafts skills training method lack the necessary basic literacy and numeracy contents because the trainers in most cases are illiterates.
- the informal apprenticeship training system does not prepare trainees for opportunities to judge situations based on available theoretical principles.
- the system lacks the theoretical base for the skills acquired.
- training did not rely exclusively on technical instruction, but based on inductive learning.
- the training mode and trainee's evaluation are haphazard in nature.
- there is the possibility of poor skill formation under an ill-equipped and a disorganized master craftsman.
- the expiration of the contract agreement does not signify that the apprentice has actually acquired the necessary skills and competencies to practice as a qualified tradesman in the industry.
- The testing and certification methods are crude and un-standardized.

(Evawoma-Enuku and Mgbor, 2005; Clarke and Winch, 2004; Uwameiye and Iyamu, 2002).

2. The formal apprenticeship training methods - e.g. Trade centres and Technical Colleges (shortcomings of this route to crafts skills training are as highlighted in section 8.3.13).

8.3.13 Existing Crafts/Vocational Training Institutions

The framework recognises the following as shortcomings of the existing formal route to crafts skills training:

- The existing Vocational training institutions and Science and Technical Colleges are under-funded and ill-equipped for the purpose of imparting employable skills for the construction industry (Puyate, 2002; Umar and Ma'aji, 2010).
- The conversion of the Technical Colleges to Science and Technical Colleges and the changing of training focus into preparing trainees for NABTEB, NECO/SSSC examinations is a deviation from the original goal of preparing students for entrance into crafts trades - the goal of training as it is now, is to prepare trainees for further education in the Universities. Polytechnics and Colleges of Education.
- The recently Federal Government approved private owned Vocational Enterprise Institutions (VEIs) and Innovation Enterprise Institutions (IEIs) do not, in most cases major on training construction crafts (they major on soft skills that do not require capital intensive workshop tools and equipment). These institutions are established and run as private businesses and are profit oriented; they are not making major contributions towards solving the Nigeria construction sector's crafts skills problems (NBTE, 2010).

- The NBTE's explains that the VEIs and the IEIs are approved by the Federal Government of Nigeria to provide a veritable alternative route to higher education due to the lack of capacity for higher education institutions to accommodate the multitude of secondary school leavers. Low participation of the private sector in skills training is another reason the FME approved the establishment of the private sector-led VEIs and IEIs with the major aim of widening access to Technical and Vocational Education and Training (TVET) to serve the needs of the industry and self-empowerment of the nation's citizens. These explanations however tend to portray the VEIs and the IEIs more as means to university and further education than for training the Nigerian citizens to acquire employable vocational crafts skills for entrance into the world of work.

- Few states, Lagos in particular; is making some efforts in the area of skills training by establishing Skills Acquisition Centres (SACs). But the core construction crafts like Block-laying and Concreting, Carpentry and Joinery, Electrical Installation etc are not commonly offered in these centres. The course duration of 6 to 9 months is

also viewed to be too short to effectively train competent and employable men and women in these core crafts; even if the existing SACs want to offer them. Furthermore, the programme (under the ministry of women affairs and poverty alleviation) looks more politically motivated.

8.3.14 Construction Crafts Skills Career Progression and relevant issues

Findings from the research also indicated that there is absence of clear path for crafts-skills career development in the Nigerian construction sector. The framework, however, recognizes the fact that NIOB and some NGO's in collaboration with some training institutions are trying to interact with construction crafts unions to organize skills development schemes; but these need to be more organized, co-ordinated and structured for inclusion in a framework in order to allow for effective monitoring and control.

Many of the Politicians seem not committed to skills training in their poverty eradication and alleviation drive - rather than invest on projects that will encourage employable crafts skills acquisition among the youths in their community development projects; they prefer procuring motor-bikes and pepper grinding machines and the likes for the youths.

As of now, apart from the National Policy on Education (NPE) which stipulates crafts skills training (CST) in general term under (TVET) in the nation's education system, there is no training policy for the construction sector.

These are relevant and salient issues for consideration for the enhancement of effective and sustainable training and development of crafts skills in the nation's construction sector.

8.4 Construction Crafts Skills Training and Development (CCSTD) Framework Structure

The framework for effective construction skills training and development is structured into the following five sections as depicted in Figure 8.3.

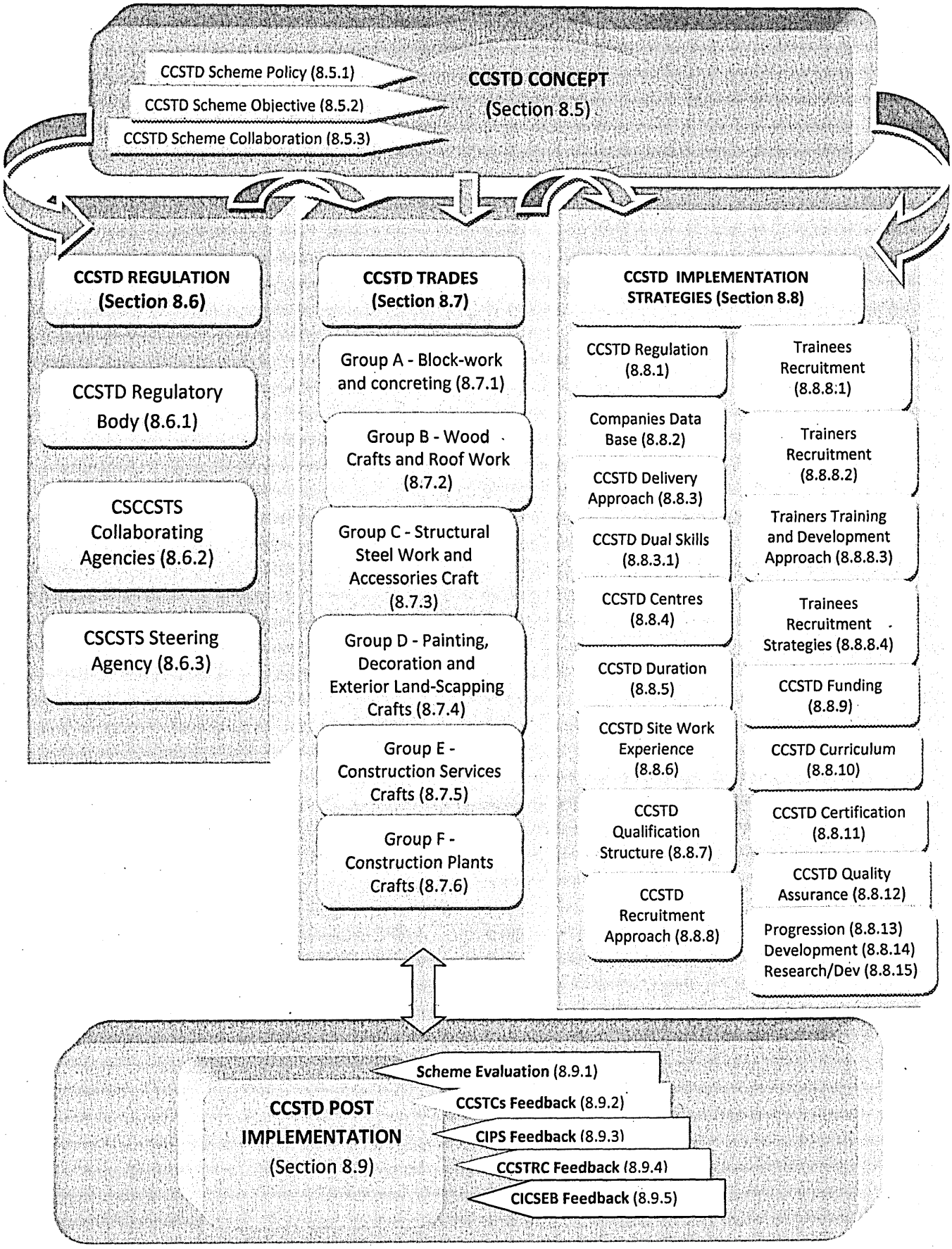

Figure 8.3: CCSTD Scheme Framework Structure

Part 1 - CCSTD Scheme Concept

Part 2 - Agencies for the organization and administration of CCSTD Scheme

Part 3 - Trades for the CCSTD Scheme

Part 4 - CCSTD scheme implementation strategies

Part 5 - CCTSD scheme post implementation/feedback

PART 1 - CCSTD SCHEME CONCEPT

8.5 CCSTD Scheme Concept

The concept of the Construction Crafts Skills Training and Development (CCSTD) scheme is based on the particular instances and prevalent situations in the Nigerian Construction Industry. There is need to attract, secure and sustain the interests of new entrants (especially from the mass of un-employed youths). Due to the absence of a functional CST framework in the nation, vocational skills training and development programmes have been observed to be lopsided with the adverse consequence of unemployment rate among the youth assuming an alarming proportion. (Omoruyi and Osunde, 2004; Salami, 2011). The concept of the general procedural approach to making the CCSTD scheme effective to ensure sustainability in the training of competent, confident and skilled construction crafts men and women for the Nigeria construction sector is discussed in this section of the framework.

8.5.1 CCSTD scheme policy

There is need for the Nigerian construction sector to formally recognise that Crafts skills Training and Development is of primary importance to profitable performance, and should be part of the sector's business strategy. Crafts skills training and development is imperative and has to be an integral part of the sector's performance objective. The emerging idea from this study is that the Nigeria construction sector should have a Construction Industry Training Policy (CITP) which is distinct from the general National Policy on Education (NPE); and which should state the sector's crafts

and other skills training and development philosophy in clear and detailed terms. The Training policy could be made an integral part of the national construction policy.

8.5.2 Collaborative Efforts in Crafts Skills Training and Development

There is a need for attitudinal change in the approach to skills training in the Nigerian construction sector, in order to ensure the effectiveness of any crafts skills training and development scheme in producing the needed craft skills to redress crafts skills crisis. Any worthwhile approach towards crafts training to address skills shortages must take cognizance of the involvement of registered construction companies in CST. The non-commitment of the non-public sector in crafts training and development has hitherto been one of the banes of producing the needed crafts-people for the construction sector; with its attendant negative effects on the productivity of the sector and the overall development of the nation's economy (Odusami and Ene, 2011; Salami, 2011; Muya *et al.*, 2006). The involvement of the construction sector in CST is therefore of paramount importance in the training of craftsmen for the industry.

The proposals and recommendations in the framework is premised on the fundamental assumption that Skills Training and Development should be a collaborative effort of both the Government, allied construction professional bodies and the private construction sector.

8.5.3 CCSTD Framework Objective

The CCSTD Framework is conceived with the belief that construction tradesmen's initial training to acquire basic vocational skills is not enough; there is need for continuous skills development or up-skilling; this will enable the craftsmen to be up-to-date and stand-up to the challenges of new innovations in materials and technology in the industry. The objective of the framework is to provide necessary guidelines on issues concerning the initial training of the new entrants into the listed construction crafts careers, and the subsequent skills or career development of the practising Trades people in the Nigerian construction sector.

PART 2 - CCSTD SCHEME REGULATORY ORGAN

8.6 Agencies for the organization and administration of Construction Sector Crafts Skills Training and Development (CCST&D) Scheme.

For the effectiveness of the CSCSTD scheme, there is need for assigning responsibilities to specific interest groups. The Framework therefore recommends the construction industry professional bodies, associations and government agencies that directly utilize the services of the various crafts persons or deemed to be relevant to the subject of construction industry skills training; to collaborate in the implementation of the Construction Sector Crafts Skills Training Scheme (CSCSTS). The relevant groups are listed in section 8.6.1.

8.6.1 CSCSTS Collaborating Agencies

This framework recommends the following construction related professional bodies, registration councils, associations and government ministries to collaborate in the actualization of the CSCSTS.

1. The Nigerian Institute of Building (NIOB) /Council of Registered Builders of Nigeria (CORBON).
2. The Nigerian Society of Engineers (NSE)/Council of Registered Engineers of Nigeria (COREN).
3. The Nigeria Institute of Architects (NIA)/Architects Registration Council of Nigeria (ARCON).
4. The Federation of Construction Industry of Nigeria (FOCI) - [formerly Federation of Building and Civil Engineering Contractors FOBACEC].
5. Federal Ministries of Youth Development, Labour and Productivity, and Education.

8.6.2 CSCSTS Steering Agency

The framework recommends that just as the NIOB/CORBON championed the course of the enactment of the Nigerian Building Code (NBC), the Nigerian Institute of Building in collaboration with the Council of Registered Builder of Nigeria; should liaise with other construction related professional bodies to champion and steer the course of

implementation of the Construction Sector Crafts Skills Training Scheme (CSCSTS) with due consultation with other agencies listed in section 8.6.1 above.

PART 3 - RECOMMENDED CONSTRUCTION CRAFTS FOR THE CCSTD SCHEME

8.7 Trades for the CCSTD Scheme

This framework takes cognizant of the fact that construction projects delivery requires the services and inputs of different craft trades; however the construction crafts skills recommended for inclusion in the construction crafts skills training and development scheme proposed by this framework are limited to the under-listed crafts groups:

8.7.1 GROUP A - BLOCK-WORK, CONCRETING GROUP

1. Block-laying, Brick-laying and Stone Masonry's Trades
2. Plastering/Rendering and Stucco Masonry's crafts (wall and floor finishing trades)
3. Block making and Concreting Trade
4. Terrazzo/Marble flooring Trades
5. Tilling Trade - (Floor and Wall Tilling)

8.7.2 GROUP B - WOOD CRAFTS AND ROOF WORK GROUP

1. General Carpentry Trade
2. Joinery Trade
3. Wood Turners and Machinists Trades
4. Roof and ceiling cladding Trades (Roof tilers, Long span aluminium roofers and Asbestos roofers etc)
5. Upholstery/Furniture work Trades
6. Glazing and wall cladding Trades

8.7.3 GROUP C - STRUCTURAL STEEL WORK AND ACCESSORIES CRAFT GROUP

1. Sheet Metal work crafts
2. Structural Reinforcing Steel Crafts
3. Welding and fabrication Crafts
4. Metal Scaffolding Crafts

8.7.4 GROUP D - PAINTING, DECORATION AND EXTERIOR LAND SCAPPING CRAFTS GROUP

1. Painting, and Paper-hanging Crafts
2. Interior Decorating Crafts
3. Exterior Land scapping and paving crafts

8.7.5 GROUP E - CONSTRUCTION SERVICES CRAFTS GROUP

1. Electrical installation and maintenance Trade
2. Plumbing and Pipe-laying and maintenance Crafts
3. Air conditioning (cooling)/Refrigeration and maintenance Crafts
4. Lifts Installation and maintenance Craft

8.7.6 GROUP F - CONSTRUCTION PLANTS CRAFTS GROUP

1. Concrete work and piling plant operators' crafts (concrete mixing machines, concrete and steel-piling equipments operators).
2. Excavating and Earth moving plant operators
3. Construction plants Mechanics and maintenance craft
4. Tower Cranes and construction hoists operating and maintenance craft

PART 4 - CCSTD SCHEME IMPLEMENTATION STRATEGIES

8.8 CCSTD scheme implementation strategies

This section of the framework proposes relevant strategies for effective implementation of the CCSTD scheme for the construction sector's trade groups listed in section 8.7. The recommendations on strategies for the CCSTD scheme implementation are aimed at creating enabling environment for adequate regulation and monitoring of the scheme with the view to ensuring quality, standard and effectiveness in its implementation.

8.8.1 CCSTD scheme Regulatory Agency

This framework is of the view that there is need for Construction Crafts Skills Training and Development (CCSTD) scheme to be adequately regulated in Nigeria in order to ensure that quality and standard are maintained and the needed competent and confident skilled crafts people are in constant supply to the nation's construction industry. Countries that consider the construction sector as a major driver in the economy have specific agencies or boards for the actualization of skills training and development goals in the construction industry. Examples include: in the UK there is the Construction Industry Training Board (CITB) which in partnership with the Construction Industry Council (CIC) formed the Construction Sector Skills Council (CSSC). The Construction Industry Training Authority (CITA) regulates construction sector skills training in the Hong Kong, South Africa's construction sector's skills training is coordinated by the Construction Education and Training Authority (CETA) Considering the importance of vocational crafts skills to the industry and reflecting on the past neglect in the area of training of this cadre of construction skills in the nation; the framework recommends the establishment of a National Construction Sector Crafts Skills Training Board (NCSCSTB) or a National Construction Apprenticeship Training Board (NCATB), distinct from the existing National Board for Technical Education (NBTE). The board should serve as an umbrella body to oversee the administration, implementation and overall regulation of the CCSTD scheme. The responsibilities of the NCSCSTB or NCATB should include but not limited to:

- Ensuring consistency and accountability in the CCSTD scheme to enhance programme quality, and performance standard.

- Promoting the CCSTD scheme and advancing the construction sector Apprenticeship scheme.
- Protecting the interests and welfare of the apprentices and training providers on the scheme.
- Educating the public through the mass media and other means on the need, importance and benefits of the CCSTD scheme to individual and the national economy.
- Coordinating both 'on and off-the job' aspects of the CCSTD scheme.
- Planning and implementing the placement and subsequent employment of trainees of the CCSTD scheme.
- Collaborating with all stake-holders for the effectiveness and overall success of the CCSTD scheme.
- Coordinating the conduct or regular assessment, evaluation and feedback on the CCSTD scheme for the purpose of facilitating necessary review, updating and improvement on the scheme.
- Liaising with relevant government agencies and other stakeholders, to initiate policies that will ensure that appropriate hourly/daily rate or wage scales and job related incentives are approved for construction sector Artisans.

8.8.2 Data Base of Construction related Companies

The framework recommends that the NCSCSTB should as a matter of primary task compile and create a data base for various categories of all the construction related contracting and component manufacturing companies (both indigenous and multinational) registered to do business in Nigeria; for the purpose of coordination of the private sector's input in the CCSTD scheme. Such data base will facilitate the planning and implementation of the practical aspect of the CCSTD scheme.

8.8.3 CCST Delivery approach

Based on the findings of the study on the approaches to crafts skills training in countries like the UK, Germany, The Netherland, USA, China, South Korea and South Africa (UNESCO, 2010; Clarke, 2008; Deissinger and Hellwig, 2006) amongst others; this

framework recommends the formal Apprenticeship training approach which combines classroom instructions with practical construction site training in the implementation of the Construction Sector Crafts Skills Training Scheme (CSCSTS). The learning method for the CCSTD scheme is recommended to be a combination of:

- On-the-job training
- College-based study
- Directed private study and
- Development of key skills (NCL, 2011; ETA, 2011)

8.8.3.1 CCST Scheme Mode

Considering the economic condition and the construction market situation in Nigeria, this framework recommends the multi-skilling approach that exposes and grounds the trainees in at least **two** of the trades under their particular trade group (section 8.7) be adopted for the CCSTD scheme. A multi-skilled worker is one who possesses or acquires a range of skills and knowledge and applies them to work tasks that may fall outside the traditional boundaries of his or her original training. The reasons for preference for multi-skilling are:

- it provides a more flexible labour force that is able to meet challenges, improve project performance and better utilise the current pool of skilled workers;
- it leads to increased labour productivity;
- it caters for the declining number of trades people and cater for a critical skills shortage;
- it affords workers the privilege of possessing a range of skills suitable for more than one work process, thus improving employability flexibility and earning (HSC, 2011).

A well structured and consistent multi-skilling program can deliver multiple benefits including reduced turnover of employees, measurable return on training investment, increased productivity and reduced waste through more skilled and engaged employees (Puttick, 2008; Ejohwomu, *et al.*, 2008). Examples of application of the dual or multi-skilling approach in the CCST scheme recommended by this framework include combination Block-laying/Bricklaying and stone masonry trade with floor/wall tiling

trades under group A; or Electrical installation and maintenance Trade with Plumbing and Pipe-laying and maintenance Crafts under group E; with due consideration for the interest and choice of the particular trainee; based on adequate guidance and counselling. The framework is of the view that this approach will enhance the employability, versatility and mobility of the CCST scheme graduates.

8.8.4 CCST Delivery Centres/Location

The framework recognises the fact that the construction sector is of vital importance and plays a key role in the economy and overall development of any nation (EBC, 2006; Odusami and Ene, 2011; Ejohwomu *et al.,* 2008; Muya *et al.,* 2006). The sector's products in form of buildings and other infrastructural facilities are needed for the effective functioning of every other sector of the economy. The training of the core crafts skills for the actualization of the sector's products therefore deserves particular attention separate from those of other sectors of the economy. In the UK for example, there exists Construction Colleges where construction sector skilled craft people are trained.

The framework therefore recommends the establishment of Construction Crafts Skills Training Centres (CCSTCs) in each of the 36 states under the aegis of the National Construction Sector Crafts Skills Training Board (NCSCSTB). The number of such CCSTCs per state should be based on the availability of construction companies for practical aspect of the training. The possibility of creating Construction Crafts Skills Training Units (CCSTUs) within the available Technical Colleges in the various states could also be explored by the NCSCSTB with due consultation and collaboration with the NBTE and other stakeholders.

8.8.5 CCST Duration

Considering the necessity for adequately equipping the trainees for employable and life-long vocation in the construction sector coupled with the need for dual-skilling approach to enhance employability and adaptability; this framework recommends a training duration of 3 years (36 calendar months) for the CCSTD scheme. Each year

should be divided into 2-semester of 18 weeks each and 8 weeks holiday. The training duration should be divided between the CCSTCs and the construction sites (CSs). The general education and core theory courses should be taught at the CCSTCs while the practical training or instruction takes place at the construction work sites. The framework proposes that trainees be attached to construction sites as Trainee/Apprentices considering proximity and availability of sites; from the commencement of their admission to the Construction Crafts Skills Training Centres (CCSTCs). 40 hours week duration is recommended with the equivalent of 16 hours spent at the CCSTCs and 24hrs spent on the construction sites. Depending on the peculiar situations of the various CCSTCs and preferences of trainees and the employers (construction companies); the training at the CCSTCs and the CSs are either arranged simultaneously or in block-release form (that is either 2 days at the CCSTC and 3 days at the CSs or equivalent of 7 weeks at the CCSTCs and 11 weeks per semester at the CSs).

8.8.6 Proposal for Construction Site Work Experience Attachment (CSWEA) for CCST Scheme Trainees

In order to ensure the effectiveness of the CCST scheme and adequately implement the practical aspect of the training as recommended in section 8.8.5, the trainees for the CCSTD scheme are recommended for placements with construction companies as 'Trainee-Employees' for the Construction Site Work Experience Attachment (CSWEA) on appropriate wage scales that will be consistent with the prevalent economic level; with functional plans to get them employed by the training providing or other construction company on completion of their training programmes. There should also be adequate strategies to improve the self employability potentials of the eventual graduates of the CCST scheme by encouraging small and medium entrepreneurship (SME) ventures in the construction sector as it is obtainable presently in the UK and other EU countries (Ganah and Rennie, 2010; EBC, 2006). Considering the social and economic situations and conditions of the Nigerian youths who are the target group of CCSTD scheme and need ensure that trainees become employable and self independent to attain economic freedom and contribute to the nation's development; the strategy of

making the CCSTD trainees 'earn while they learn' as it is practiced in the UK is considered to be a viable option by the framework.

8.8.7 CCST Qualifications Structure

The study took a critical and analytical look at the NBTE's National Vocational Certificate (NVC) curriculum and course specification draft document designed for the VEIs and the IEIs (NBTE, 2011), along with the two-tier qualification structure of National Technical Certificate (NTC) and the Advanced National Technical Certificate (ANTC) being awarded by the National Business and Technical Examinations Board (NABTEB, 2011); and recommends that in order to:

- afford an in-depth coverage of the curriculum and sufficient exposure to achieve proper grounding of the trainees;
- ensure that the scheme's qualifications is not another 'dead-end'; and
- affords the graduates the opportunity for professional and career advancement.

The NBTE's NVC 1 and NVC 2 curriculum should be spread over the 3 year period proposed for the first level of the CCSTD scheme and be named Basic Vocational Certificate (BVC). The NVC 3 curriculum with necessary modifications (to allow for more exposure to applied sciences and practical instructions) is recommended to be programmed for 1 year duration and be named Advanced Vocational Certificate (AVC). A third level qualification of National Vocational Diploma (NVD) of 1-year duration is recommended for holders of the AVC with at least 1 year post-qualification work experience; to impart further technological and managerial skills to the artisans.

8.8.8 CCST Trainees and Trainers recruitment

For the purpose of ensuring that the identified shortcomings of the informal apprenticeship training method are avoided and in order to ensure that trainable candidates and qualified trainers are engaged in the CSCSTS, this section of the framework recommends relevant criteria for trainees and trainers recruitment.

8.8.8.1 CCST Trainees Recruitment

The framework recommends that recruitment of Trainees for construction crafts skills training (CCST) should put into consideration the literacy level of the candidates. Literacy level in the context of this framework is as defined by UNESCO (2003) which states that: *'A literate person is one who has acquired the knowledge and skills indispensable to the performance of all activities for which literacy is necessary in order to play an effective part in his group and his community; and whose achievement in reading, writing and arithmetic are such that they enable him to continue the development of the community and to participate actively in the life of his community'.*

Based on the foregoing, the framework recommends the following avenues and groups for the sourcing or recruiting trainees for the Construction Crafts Training Centres (CCTCs):

- Junior Secondary Schools graduates (Post Basic Education Certificate)
- Senior Secondary Schools graduates (SSS Certificate)
- Unskilled youth that are out of school (with consideration to aptitude and Trade group).
- Non-skilled literate young Adults (with necessary consideration to aptitude and Trade choice).

The framework advices that the trainees into the construction crafts training centres be recruited from the existing Junior and senior secondary schools across the nation based on adequate aptitude testing.

8.8.8.2 CCST Trainers recruitment

The framework recommends that appropriate criteria be designed for the recruitment of trainers or instructors into the CCTCs. Criteria for selection should include adequate practical site work experience (at least 3 years compulsory post qualification construction site practical work experience) for workshop and core practical subjects instructors. A minimum qualification of NCE (Technical); HND in Building or minimum of National Vocational Diploma (NVD) with a teaching qualification such as Technical Teacher's Certificate (TTC) or Post Graduate Certificate in Education (PGCE). Teachers of Science and general education courses should possess minimum qualification of BSc degree with at least 1 year post qualification experience with a

teaching qualification (as earlier stated). Trainers to which the trainees are attached on the construction sites for practical site training should possess a minimum of the National Advanced Vocational Certificate (NAVC) or the NABTEB's Advanced National Technical Certificate (ANTC); but with at least 1 year post qualification site work experience).

The framework recommends that Trainers or instructors for the CCSTCs should be enlisted only if they fulfil all selection criteria and attend mandatory induction training.

8.8.8.3 Continuous training and development for CCST scheme Trainers

This framework opines that for the purpose of ensuring sustainable standard and quality assurance of the CCSTD scheme, there should be adequate, mandatory and regular professional and career development training for both the class-based and the site-based trainers operating within the scheme. This will ensure that the trainers are up-to-date with their KSCs, current innovations within the industry and in their capabilities to impart the needed skills. The framework therefore recommends that annual Training Needs Analysis (TNA) be carried out for the trainers and CPD scores' attracting mandatory skills development trainings be arranged through attendance at workshops, seminars and conferences using any or combination of appropriate methods such as Learning through Experience, Internship, Classroom Training, Case Study, Lectures, Role-Play, Programmed Instruction, Vestibule Training, Job Instruction Technique (JIT), Mentoring, Coaching, or Learning through Experience (Flippo, 1984; Craig, 1996; Davies and Davies, 1998; Awe, 2004; Naukrihub, 2007; Tabassi and Abu Bakar, 2008). Figure 8.4 presents a Four- stage-training model (Bratton and Gold, 2003) which the framework views to be relevant to the task of training and development of the trainers in the CCSTD scheme.

8.8.8.4 Strategies for CCST scheme Trainees' Recruitment

This framework recommends that the NCICSTB in consultation and collaboration with the Registration Boards of the Construction related Professional bodies that are directly involved with the construction process (see section 8.6); should create Construction Crafts Trainees Recruitment Committees (CCTRCs). These committees should arrange

or form Construction Crafts Careers Counselling Teams (CCCCTs) in each state. The CCCCTs should liaise with the States ministries of Education in each state to visit secondary schools to collaborate with the schools' career guidance counsellors for the purpose of educating and mobilising the Youths at the Junior Secondary School (JSS) and the Senior Secondary School (SSS) levels for the purpose of recruitment for training at the CCSTCs.

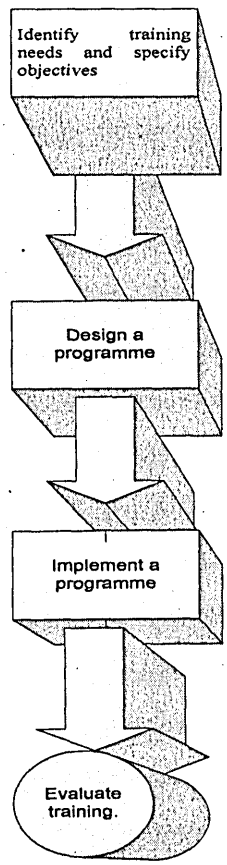

Figure 8.4: Four- stage-training model (*Bratton and Gold, 2003).*

The Crafts Career Counselling Teams should also monitor the conduct of the Career Aptitude Testing Schemes (CATS) to ensure that adequate records or data base is maintained in each school. Students in the JSS whose aptitude scores are found to be more suitable for admission into Construction Crafts Skills Training Centres (CCSTCs) should be appropriately counselled to attend CCSTC to train to acquire appropriate construction skills of their choice; and for which they are most suited.

8.8.9 CCSTD Scheme funding

The framework recognises that funding is an important aspect of the CCSTD scheme because TVE is a very expensive venture which required massive funding and investment in both human and material resources. Other studies have viewed funding of training in construction as an expensive enterprise (Muya *et al., 2006;* Odusami and Ene, 2011). What is obtainable as of present in Nigeria is that the responsibility for the funding of TVE as it is for other sectors of public education is vested in the three tiers of government of the federation; while trainees in the existing vocational training institutions (VTIs) pay subsidized and relatively low fees and charges which constitute an insignificant proportion of the finances for the running of the institutions (UNESCO, 2010).

Government agencies such as the Education Tax Fund (ETF) and the Industrial Training Fund (ITF) were established as intervention agencies in matters related to manpower training in the nation's industrial sector. Act No. 7 of 1993 as amended imposes a 2 percent (2%) Education Tax on the assessable profit of all registered companies in Nigeria. The Federal Inland Revenue Service (FIRS) is empowered by the ETF Act to assess and collect Education Tax. The Fund administers the tax imposed by the Act, and disburses the amounts to educational institutions at Federal, State and Local Government levels. It also monitors the projects executed with the funds allocated to the beneficiaries (ETF, 2011). The ITF Act on the other hand is funded through the collection of a mandatory payment of 1% of the annual payroll from eligible employers and annual subvention from the Federal Government (ITF, 2011). Despite the efforts towards funding of TVE in the nation, low budgetary allocation and poor funding has been identified as a major problem confronting VTE (Salami, 2011;

Umar, 2005; Atsumbe, 2002; Puyate, 2002; Nnoli, 2001 and Aina, 2000). The major reason for this as indicated by the primary research conducted in the course of this study is the low participation of the private sector in training.

There is also the view that the cost of training in the construction sector needs to be shared among the state, the construction sector and the trainees; however, government funding of skills training coupled with appropriate regulation to compel firms to contribute to training has been viewed as a strategy to ensure industry's participation and guide against the neglect of the training needs of the less privileged in the society who need such trainings to improve employability, economic status and living standard (Muya *et. al.,* 2006). The interview enquiry identified the non enforcement of relevant regulations (e.g. SIWES) to ensure the commitment of the private sector to skills training as one of the factors militating against effective crafts skills training in the Nigeria construction sector. In the UK and other EU countries, the construction sector plays leading roles in funding the sector's apprenticeship training schemes (Dainty *et al.,* 2005; Dainty *et al.,* 2004; Mackenzie *et al.,* 2000; Clarke *et al.,* 1998; Kumaraswamy, 1997).

The framework recognises the need to consider the poverty level and economic situation of the Nigerian youths and unskilled men and women population for which the CCST scheme is targeted. Other relevant factors for consideration are the construction sector's skilled crafts manpower need along with the need to overcome the barriers to new entrants into construction related crafts skills. It is also imperative to consider the need to secure the interests of the youth and effectively shift their focus from non-skill menial occupations to which many of them are currently engaged, and get them motivated, mobilised and recruited for the CCST scheme.

The framework therefore recommend that the CCST scheme be funded through partnering or collaborative efforts of the government, the private construction sector, community based and international organisations' TVE aids. Investment in form of adequate funding will also be of utmost necessity for the CCSTCs to acquire training equipments in order to build adequate capacities for crafts training and discharge the roles of training effectively (Awe *et al.,* 2011; Dainty *et al.,* 2004; Johanson, 2002; Ziderman, 2001). Collaboration and partnering between government and the organized construction sector is paramount in addressing the challenges of funding and provision of modern training equipments and in the management and running of the CCSTCs.

Corporate support from the three-tier of government, the construction private sector, Non Government Organizations (NGOs), Parents Teachers Associations (PTAs), and Community Based Organizations (CBOs) has been suggested as viable strategies for acquiring adequate facilities for VTIs (Prew, 2009; Umar *et al.,* 2009; Uzokwe, 2000); such collaborative effort in funding will be of immense benefit to the CCSTD Scheme. The view of the framework is that appropriate mechanism to repatriate the existing annual taxes and levies paid by the construction sector to the ETF and ITF should be designed, and such repatriated sums form part of the sector's contribution to the CCST scheme's funding. The framework recommends a training funding sharing ratio of 70:20:10 between the government, the construction industry sector and other specified agencies respectively.

8.8.10 CCSTD Training Curriculum

While it is not an objective of the framework to design a detailed training curriculum for the CCSTD scheme, it is the opinion of the framework that the existing NBTE's NVCs curriculum and course specifications (NBTE, 2007) for construction industry related crafts courses should be a reference guide, or starting point in the design of appropriate training curricula for the various recommended qualification cadres of the CCST scheme. The framework recommends that the CSCSTB constitute appropriate committee to compile detailed curricula with the view to achieving the intended goals of ensuring both professional and career developments of the trainees and graduates of the CCST scheme (see sections 8.8.7 and 8.8.13).

8.8.11 CCSTD Assessment, Examination and Certification

In the present structure of the Nigerian system of education, students or trainees of the Junior Secondary Schools (JSSs) are assessed and certified by the National Examination Council (NECO). The Senior Secondary School Certificate (SSSC) is awarded by the West African Examinations Council (WAEC) and the (NECO). The National Technical Certificate (NTC) and the Advanced National Technical Certificates (ANTC) are awarded by the NABTEB at the end of the two-tier system of vocational courses offered by the Technical Colleges. The lower level program which is

equivalent to the SSCE lasts three years after JSS, while the advanced program entails a minimum of one year pre-entry industrial work experience and ranks on the lower tertiary education level (NABTEB, 2011; WENR, 2004). The training institutions' input in the examination and certification is in the form of administering the continuous assessments of the trainees.

Considering the emerging data from the study enquiries and document analysis, NABTEB as an examination body established with the primary objective of examining and certifying vocational crafts trainees seems to have shifted from its original focus and now competes with WAEC and NECO to award certificates for university admission. In the same token, the Trade Testing Certificate Scheme designed to test and award Trade tests at Grades I, II and III levels to crafts-people have been greatly compromised. Tests are hardly ever carried out and yet certificates are obtained by merely filling forms and paying required fees (Odusami and Ene, 2011).

In order to ensure that the trainees of the CCSTD scheme are adequately tested and properly certified, it is recommended that arrangements for the examination and certification of the scheme be a separate arrangement from the existing arrangement where the NABTEB examines and certifies TCs and STCs students. While the NABTEB continues with the testing of the Technical colleges students and awarding the National Technical Certificates (NTCs) to existing VTIs' graduates for the purpose of pursuing university and further education; the framework recommends the creation of a Construction Industry Crafts Examination Board (CICEB) or a Construction Industry Vocational Education Examination Board (CIVEEB) as opined by the data analyses; with representatives from the Federal Government (FG), Allied Construction Industry Professional Bodies (ACIPB), the Organised Construction Industry Sector (OCIS) and other relevant stakeholders. This will allow for adequate monitoring, control and Quality Assurance (QA). The examination board should test and award certificates for the CCSTD scheme (see section 8.8.7). This will facilitate proper regulation and standardisation of the trainees' testing and certification and ensure that the graduates possess the skills and competencies for which they are certified.

The framework recommends the CCST scheme's assessment methods to include:

- On-site assessments of practical competency
- Building of portfolios of evidence

- Theory/class-based tests/Examinations

This is the practice in the UK construction colleges.

The Basic Vocational Certificate (BVC), Advanced Vocational Certificate (AVC) and the third level qualification of National Vocational Diploma (NVD) should be externally moderated, and examiners or assessors representing the Construction Sector Crafts Skills Training Board (CSCSTB) should supervise the conduct of both the On-site and class-based assessments. It is recommended that in grading the award for each of the recommended qualifications; theory or class-based examinations should constitute - 20%, workshop practical - 40% and Construction Site Work Experience Attachment (CSWEA) - 40%. While trainees are to be assessed on completion of every module, it is recommended that 25% of the total marks in each case be allocated for continuous assessments conducted periodically on individual trainee. Adequate and up-to-date records of the continuous assessment grading should be kept by the CCSTCs for each trainee.

8.8.12 Proposals on Strategies for achieving Quality Assurance (QA) in the CCSTD Scheme

The framework views the matter of quality assurance (QA) and appropriate benchmarking as imperative. Findings from the quantitative and qualitative analyses of relevant data on strategies for QA and benchmarking of the CCST scheme suggested a collaborative effort in the QA and benchmarking of VET in the Nigeria construction sector. Within the nation's existing TVET system, the Federal ministry of education (FME) and its appropriate agencies see to QA at the various tiers of education (NBTE, 2011). The NBTE in particular regulates and accredits academic programs in TVE colleges and at other levels of technological education. The various Construction Industry Professional Bodies (CIPBs) also organise accreditation visits to relevant departments that offer professional courses at the Polytechnic level; with the view to maintaining QA and ensuring that the curricula are relevant, up to date and of acceptable standard. The data analyses support the involvement of the OCIS and the ACIPBs in the QA and benchmarking process to represent the industry sector. The framework therefore recommends that the OCIS and the relevant ACIPBs collaborate with the CCSTCs, under the aegis of the NCSCSTB not only in the area of QA of the

scheme's testing and examination (see section 8.8.11); but for the attainment of QA in the entire process and administration of the scheme. The Federal Ministry of Labour and Productivity (FMLP), Federal Ministry of Education (FME), State Education Boards (SEBs) and the Local Education Departments (LEDs) can have representatives on the QA teams as deemed fit; to represent the government's interest to enhance policy issues while the NBTE concentrates on QA for the middle-level manpower training programmes in the Polytechnics and other VTIs.

8.8.13 Proposal for Professional and Career progression of the graduates of CCSTD Scheme

Findings from both primary and secondary surveys in the course of this study reveal that too much emphasis on the academic or secular education route to the neglect and relegation of the vocational route has been a major deterrent factor discouraging new entrants into vocational skills careers in the nation's construction sector in the past (Awe *et al.*, 2010; Salami, 2011). Secondary data also confirms poor image of construction related craft skills career and lack of professional recognition (Green *et al.*, 2004; Dainty *et al,* 2007; Ness, 2009; Salami, 2011), and absence of clear career path (Awe *et al., 2009;* Odusami and Ene, 2011) amongst others as inhibiting factors to the sector attracting candidates into construction related crafts training.

The framework recognizes the need to make provision for craft or vocational route in the career progression policies in the construction and public sectors in Nigeria. Similarly, vocational route for career progression in the relevant professional bodies in the nation will be a positive move towards attracting new entrants that will want to take construction crafts as life-long careers. The Nigerian Institute of Building (NIOB) for instance, in section 5.5.9 of its Constitution and in the membership framework reflects two categories for Craftsmen and Artisans (NIOB, 2009; NIOB, 2002). This is a laudable innovation, but there is need for a more detailed approach for the integration of vocational qualifications into the institute's membership progression profile. Even the Chartered Institute of Building had in recent times seen the need to accord recognition to vocational qualifications such as the NVQs for registration for membership; highlighting the fact that the Honours degree is not the only route to becoming an MCIOB. (CIOB, 2011, Clayton, 2011).

The framework therefore recommends that CCST scheme qualifications be included in the requirements for membership admission of the Nigerian institute of Building. The holders of the NBVC are recommended for consideration for admission into the Technician membership grade and the holders of the NAVC for the Associate membership cadre of the institute. On the sector's professional practice front, the framework recommends holders of the NAVC for advancement to the Master Craftsman's level. The NVD qualification is recommended for consideration for advancement into the corporate membership of the NIOB (see figure 8.5), and a requirement for advancement to the post of construction site manager (see figure 8.6); after the holders have attained the required CPD scores and requisite post qualifications work experiences for the various membership cadres as would be determined by the institute. There is also the need to accommodate vocational qualifications in the career progression policies in the public sector. This recommendation is premised on the need to ensure that construction sector's vocational crafts career is not a 'dead-end', and is able to attract entrants who will take vocational skills as life long careers and climb the rungs of the professional ladder to the top.

8.8.14 CCSTD Skills Development Strategy

This framework opines that Craftmen's initial training to acquire basic vocational skills is not enough, there is need for continuous skills development or up-skilling, this will enable the craftsmen to be up-to-date and stand-up to the challenges of new innovations in materials and technology in the industry. Construction companies, whether expatriate or indigenous should put policies in place to ensure that craftsmen are elevated and rise on their career paths over time, they should be given the opportunities for up-skilling along with good welfare packages as it is obtainable in the civil service. By so doing they will be able to retain experienced workforce and others will be encouraged and motivated to want to belong and get trained, when they know that there is job security, dignity and career advancement".

Continuous professional development (CPD) schemes should be extended to the craftsmen, they should undergo regular trainings on modern tools, equipments and methods; the relevant professional bodies will have to champion such skills development efforts.

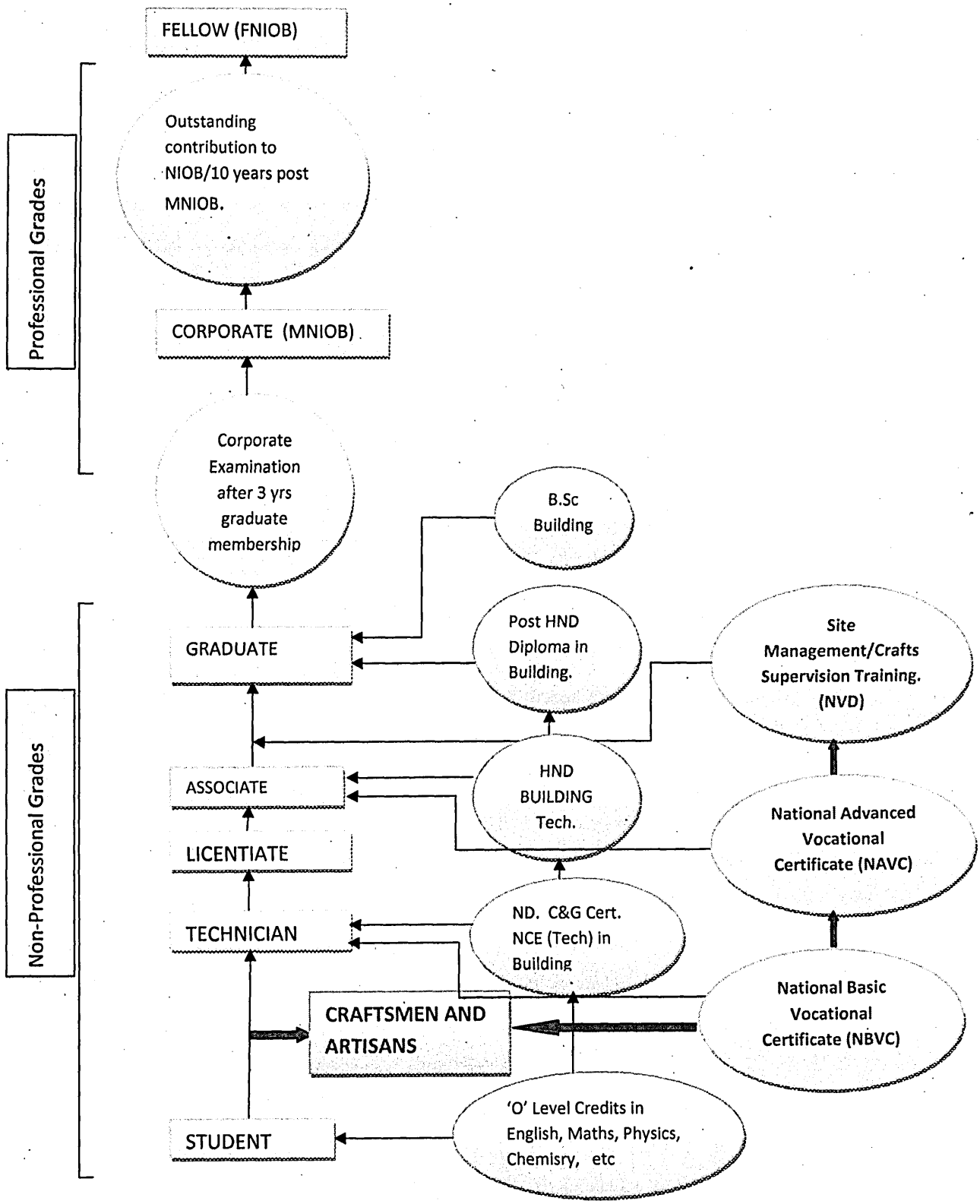

Figure 8.5 - Proposal for Professional Career route for Craftsmen and Artisans in the NIOB. (Adapted from NIOB 2002)

Development training needs of the CCST graduates can be monitored and ensured through carrying out regular training needs analysis (TNA), the framework recommends that apart from their basic trainings, craftsmen should be given opportunities to attend refresher courses through attendance of conferences and workshops as recommended for the trainers' development (see section 8.8.8.3); as much as is practicable. In ensuring that appropriate skills development training programs are planned for craftspeople in the construction sector, necessary considerations need to be given to the stages or steps the organization goes through for the transfer of training to the field.

The sequential steps include: Identification of the training needs of the organization or industry with the view to designing the program and determining the right categories of employees to be selected for the training; actual selection of the participants for the training, defining the expectations from the program and communicating same to the selected participants, monitoring the trainees' progress on the training, and facilitating the transfer of training to the field (Piskurich, Beckschi, and Hall 2000; Biech, 2005; Naukrihub, 2007a).

It is the view of the framework that all skills development training programs for the CCST scheme's graduates should fulfil the essential requirements of relevance and reflection of the real world.

8.8.15 CCSTD R&D proposal

Findings from the qualitative data collected for the framework suggests the need for appropriate research and development (R&D) to identify new innovations in materials and technologies in the sector. In order to ensure effective skills training and development for construction crafts people, and adequately plan programs for the training of new entrants and up-skilling of the existing crafts people on new skills; the framework recommends that the proposed NCSCSTB create a R&D unit vested with the responsibility for researching into global trends in new innovations in construction related plants, equipment and methods and make necessary recommendations that will ensure that such new innovations are inculcated into the training curricular of the CCSTD scheme on a regular basis or at specified periods.

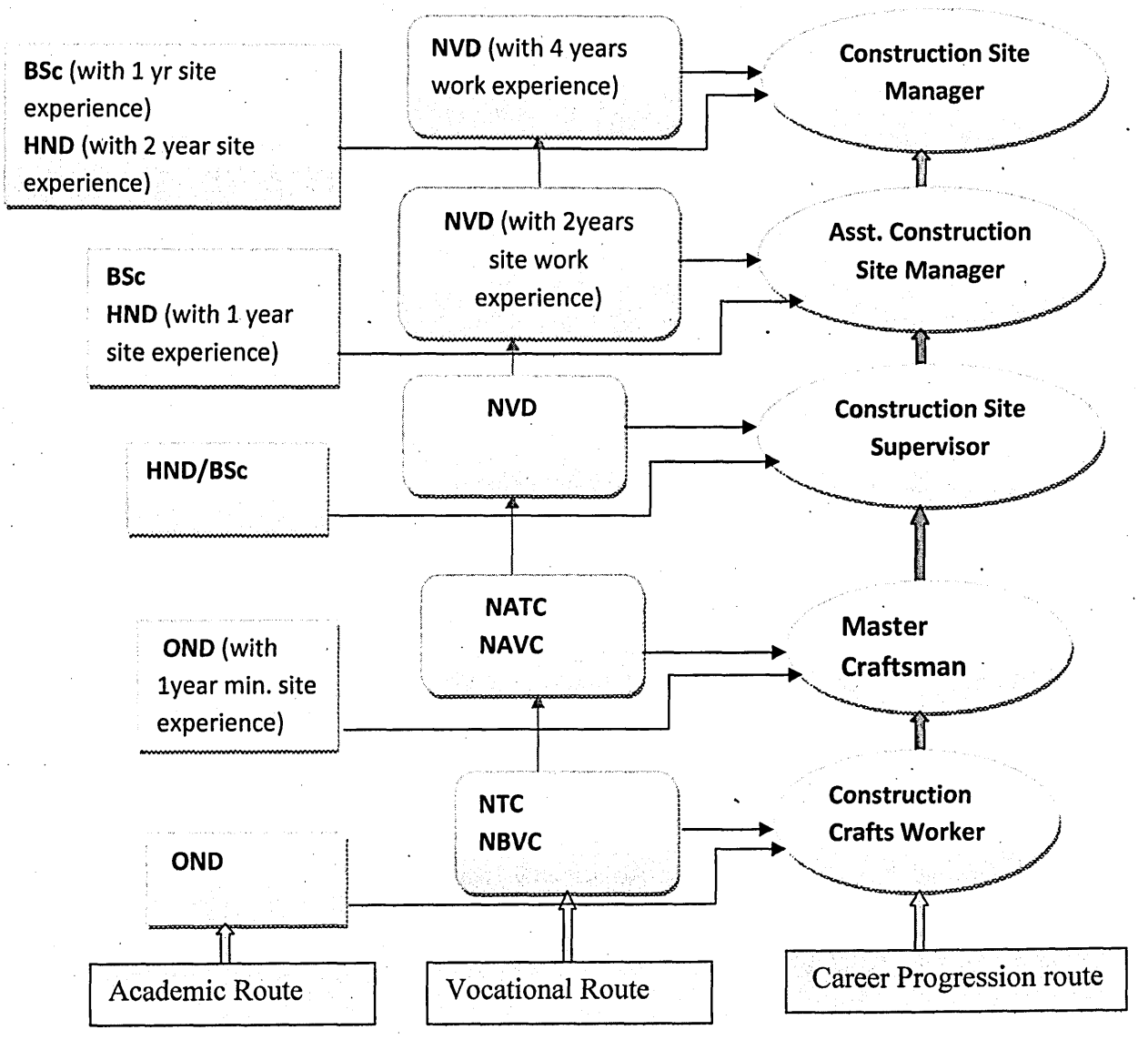

Figure 8.6: Proposal for Career Progression (Vocational and Academic)

Part 5 - CCSTD SCHEME POST IMPLEMENTATION AND FEEDBACK STRATEGIES

8.9 CCSTD scheme post implementation Evaluation and Feedback

A training and development programme can be evaluated in terms of delivery, that is, how instruction was given. This is known as process or activity assessment. Process measures or records what went into the training activity, it describes or determines whether what was expected actually happened.

Process information can be obtained by interviewing the participants or trainees in form of opinion survey or through examination of materials, or observation of training in progress. Evaluation can take the form of examining workers attributes subsequent to training. This is termed outcome or results assessment. Outcome is the basic factor with which any investment in training can be rationalized. There are different types of outcomes; for instance:

- improvement in knowledge and skills after training could be measured by examining samples of work (to determine quality);
- measuring productivity or performance change, tests taken during courses or special tests administered thereafter;
- if there is comparable information about the trainees capacity prior to training, reasonable comparison can be made to determine how much was learnt afterward.

Effects on work outputs and work-related behaviours are more practical and more effective measures. These include changes in the quality and amount or quantity of work, absenteeism and turnovers, relations with co-workers, motivation and efforts demonstrated at work (Reid *et al.*, 2004; Furjanic and Trotman, 2003; Sloman, 2003). Specific methods for evaluation include observation, questionnaire, interview, and self diaries.

The CCSTD evaluation will be relevant in the following key areas; namely: Scheme overall evaluation, feedback from the construction crafts skills training centres (CCSTCs), feedback from construction industry private sector (CIPS), feedback from construction crafts skills trainees recruitment team (CCSTRTs), and feedback from the construction industry crafts skills examination board (CICSEB).

8.9.1 CCSTD Scheme overall Evaluation

The framework recommends that appropriate strategies be adopted for evaluating and getting feedback on the CCSTD Scheme. Both the initial trainings at the CCSTCs and subsequent skills development trainings should be subjected to regular evaluations in terms of delivery and outcome. The proposed National Construction Sector Crafts

Skills Training Board (NCSCSTB) should initiate, coordinate and document the evaluation and feedback from every aspect of the scheme for the purpose of achieving effectiveness in the benchmarking and quality control of the scheme.

8.9.2 Evaluation and Feedback from the Construction Crafts Skills Training Centres (CCSTCs)

The CCSTCs as centres of training for the CCST scheme needs to carry out regular evaluation and the results of should be submitted to the NCSCSTB on regular interval (the framework recommends quarterly evaluation and feedback). The assessment or evaluation should include feedback on trainees' learning experiences (both at the training centres and on the construction sites), the assessment of the workshop and laboratory tools and equipment, trainees' feedback on trainers, drop-outs and completion rates and strategies for tackling identified shortcomings.

8.9.3 Evaluation and Feedback the Construction Industry Private Sector (CIPS)

The framework recognises the important role of the construction industry private sector in ensuring that the construction crafts skills training scheme meets the sector crafts skills need. The framework therefore recommends that the CCSTD regulatory board should liaise with companies and organizations engaging the services of the CCST scheme graduates to get feedback on performances 'on-the-job' with the view to assessing the relevance and effectiveness of the scheme in meeting the crafts skills need of the construction sector and determining areas for improvements from time to time.

8.9.4 Evaluation and Feedback from the Construction Crafts Skills Trainees Recruitment Committees (CCSTRCs)

The trainees' recruitment committees and the construction crafts career counselling teams (see section 8.8.8.4) are vital organs of the CCST scheme responsible for sensitizing prospective trainees on the importance and relevance of construction crafts

careers and for ensuring that required numbers of trainable candidates are recruited regularly for training at the CCSTCs. There is need for evaluation and feedback inter alia, on the challenges of trainees' recruitment, numbers of trainees recruited, cooperation from schools guidance counsellors; this evaluation and feedback is recommended for presentation to the NCSCSTB annually.

8.9.5 Evaluation and Feedback from the Construction Industry Crafts Skills Examination Board (CICSEB)

The framework recommends that the proposed Construction Industry Crafts Skills Examination Board carry out annual evaluations on passing/failure rates in examinations, feedback from examiners and assessors of the construction site practical work experience and regular evaluation and feedback on the examination and testing syllabi.

8.10 Summary

This section of the study report presented a framework that could serve as a guide for the attainment of effectiveness in the training and development of crafts skills in the Nigerian construction sector. The framework is aimed at particularly addressing the problems confronting construction crafts skills training. The proposals in the framework are targeted at motivating, securing, sustaining and enhancing the interests of new entrants into construction crafts careers. The framework was structured and elaborated in five relevant areas; namely: the CCSTD scheme concept, CCSTD scheme regulatory organ, recommended construction crafts for the CCSTD scheme, strategies for CCSTD scheme implementation and CCSTD scheme post implementation and feedback strategies. The framework indicated issues that the various stakeholders needs to observe and embark upon for effective training and development of crafts skills careers in the construction sector. Past efforts and prevalent problems inhibiting effectiveness in crafts skills training and development in the sector were also identified and discussed and areas for improvements to enhance skills development and crafts career progression were explained. The framework was forwarded to experienced professionals in the Nigerian construction industry with the view to gathering necessary

feedback on its adequacy, relevance and applicability in addressing the crafts skills training and development issues in the nation. The feedback were analyzed, observations and suggestions relevant to its improvements were reflected in the final edition.

The detailed report of the framework validation process is presented in the following section.

8.11 CCSTD Framework Validation

8.11.1 Aim of the Section

The framework developed to facilitate effective training and development of construction craft skills in the Nigerian construction sector is presented in chapter 8 of the research report. This section reports the validation of the framework. The section commences with an introduction aimed at explaining the objectives of the validation exercise. The process adopted for the validation phase and its justification are also discussed. The profiles of the professionals who participated in the framework validation exercise are outlined and the criteria for selection of the verifiers are presented. Response from each of the verifier is presented followed by the analysis of the comments, observations or suggestions. The section closes with the summary of findings from the validation phase and a summary of the section.

8.11.2 Introduction

The framework is developed as a 'best practice' guide for the planning and implementation of crafts skills training and development in the Nigerian construction sector; with the view to ensuring effectiveness in crafts skills training and development, thus fostering sustainability in the supply of competent and confident crafts workforce to meet the sector's crafts skills need.

8.12 Framework Validation Objectives

The objectives of the validation exercise include:

1. To obtain experts' validation of the framework as proposed in the research objectives
2. To assess the adequacy, applicability and practicability of the framework proposals in addressing the problems of crafts skills training and development in the Nigerian construction industry.
3. To investigate the understanding of Nigerian construction industry's professionals of the components of the framework.
4. To explore the views of professionals on the relevance of the framework to crafts skills training and development in the Nigerian construction sector.
5. To identify areas for necessary modifications to make the framework more functional in addressing the need of training and development of construction crafts skills in the Nigerian construction sector.
6. To assess the possible benefits of the framework in the enhancement of crafts skills training and development in the Nigerian construction industry.

8.13 CCSTD Framework Validation Process

For the purpose of validating the construction crafts skills training and development framework, professionals with varied but vast experiences in the Nigerian construction industry were contacted and selected to serve as verifiers. In order to ensure a realistic and reliable validation, the individuals selected to participate in the verification exercise were to meet specific criteria which include:

- a good knowledge of crafts skills training and development issues in Nigeria;
- involvement in vocational skills training and development in the Nigerian construction industry;
- vast and knowledgeable in the management of the building production process within the Nigerian construction sector;

- have at least ten years experience in professional practice within the Nigerian construction industry.

The above listed criteria were set as a basis for the verifiers' selection to ensure that only well experience professionals with vast and relevant knowledge and experience are selected to participate in the framework validation process. Using the listed criteria as a pedestal, seven of the professionals identified to meet the set criteria and who indicated interest in participating in the verification exercise were purposively selected for the validation process:

- Two participated in the preliminary experts' pilot survey;
- Three of them participated in the qualitative interview enquiry; while
- Two of the selected participants neither participated in the interview enquiry nor any of the surveys.

Tables 8.1(a) & (b) present the details of the profiles of professionals selected to participate in the CCSTD framework validation.

Only six of the seven selected in verifiers provided feedback (see table 8.1) representing 85.71% response rate.

The feedback received from these selected experienced and informed professionals in the Nigerian construction industry afforded a strong and reliable validation for the framework.

8.14 Parameters for CCSTD Framework Verification

Each of the selected verifiers were provided with a copy of the CCSTD framework and requested to provide candid opinions and comments on:

1. The comprehensiveness of the framework and clarity of the proposals;
2. Relevance of the framework to addressing crafts skill training issues in the Nigerian construction sector;
3. Applicability and ability of the framework in tackling Nigerian construction sector's crafts skills training and development issues;

4. Any omissions of relevant subject that could enhance crafts skills training and development in the Nigerian construction sector; and
5. Suggestions for modification and improvement to enhance the framework to improve the effectiveness of crafts skills training and development in the nation's construction sector.

Table 8.1(a): Profile Details of Framework Validation Participants

Validation Id. number	Professional Practice	Training Background	Details of Practice Experience (yrs), Educational Qualification, Professional Status/Involvement in the survey.
Verifier 1	Architectural Designing and Construction Management	Architecture and Building.	• Currently engaged in Professional practice in Architectural Design and building production management. • Has over 25 years of working experience in the Nigerian construction industry. • Possess an MSc in Architecture/Msc and PhD in Construction Management. • Member of the Nigerian Institute of Architects and a chartered Architect with ARCON. • Did not participate in the interview survey
Verifier 2	Socio-Economic Research	Urban and Regional Planning	• Currently practice as a Construction industry Social Researcher • Has conducted various researches on vocational skills training issues in the Nigerian construction industry with special interest in youth empowerment through skills acquisition • Has about 10 years of working experience in the industry. • Possess university degree in urban and regional planning. • Participated in the pilot or interview survey
Verifier 3	Technical Teachers' Education/Building and Civil Engineering Contracting	Civil Engineering	• Currently engaged in Professional practice in Building and Civil Engineering contracting. • A chief executive and administrator of a leading Technical/Vocational Teachers' Training institution in Nigeria • A member of the Nigerian Institute of Building • A member of the Nigerian Society of Engineers. • A Registered Engineer with the council of Registered Engineers of Nigeria (COREN). • Has over 30 years working experience in the construction industry • Possess a PhD in Technical/Vocational Education as highest educational qualification • Participated in the interview survey

Table 8.1(b): Profile Details of Framework Validation Participants contd.

Validation Id. number	Professional Practice	Training Background	Details of Practice Experience (yrs), Educational Qualification, Professional Status/Involvement in the survey.
Verifier 4	Estate Management/Construction Management	Estate Surveying and management	• Currently engaged in professional practice in Estate surveying and management • An Academician and Trainer in the Built Environment faculty of a leading technological/tertiary education institution in Nigeria • A member of the Nigerian institute of estate surveyors and valuers • A Registered Surveyor with the Estate Surveyors Registration Board of Nigeria. • Has over 25 years of working experience in the construction sector • Possess a MSc degree in Estate Management and a MSc in Construction Management • Participated in the preliminary expert pilot survey
Verifier 5	Construction Management/Estate Management	Building	• Currently engaged in the Building production management and training. • Has an MSc in Construction management • Registered Builder with the Council of Registered Builders of Nigeria • Has 25 years of working experience in the construction industry • Did not participate in the pilot or interview survey.
Verifier 6	Quantity Surveying	Quantity Surveying	• Currently engaged in Quantity Surveying Professional Practice • A registered Quantity Surveyor • A university Don • Has over 20 years of professional practice • Posses a PhD degree in Construction Management • Participated in the preliminary expert pilot survey

8.15 Justification for Validation method

Some possible alternative approaches were considered for the validation exercise; example of this includes: organizing a workshop or similar event and inviting construction professionals for discussion and feedback on the framework. This approach was however viewed to be expensive in terms of time and cost. Considering the scope and limitations of the research project in terms of financial resources and time factor, coupled with the logistics and difficulties of getting the selected professionals

together for such a forum in view of their individual work schedules and other engagements; the framework was e-mailed to the verification participants as an attachment and they were instructed to e-mail their individual comments back for analysis. This method was considered to be most feasible to yield the best result in the light of the earlier listed constraints.

The adopted validation method was also preferred because it could help circumvent any bias which might be possible if a face to face interview enquiry approach was adopted for the exercise. The method was also considered to afford the selected professionals the freedom to volunteer well thought-out responses, because they could consult other professionals if they deem it necessary to do so in the process of reviewing the framework. Moreover, in view of the tight work and other schedules of the verifiers; the method afforded them the freedom to peruse the framework and forward the feedback at their own convenient times.

8.16 Details and Analysis of Validation Feedback

The feedback returned by the expert validators of the of the CCSTD framework were critical, positive and constructive. However, some salient points were raised and suggestions were advanced for further modification and improvement of the framework. The observations and suggestions from each of the verifier with the analyses and follow-up actions are presented in this section.

8.16.1 Comments and Feedback from verifier 1:

- *The document is adequate, comprehensive, relevant and appropriate to address the Nigerian construction sector crafts skills training needs.*
- *I will however suggest that the possibility of extending recruitment of trainees to include young adults that are out of the formal school system be looked into in the final draft of the framework.*

8.16.1.1 Feedback Analysis (Verifier 1)

- The framework has been developed to enhance effectiveness in the training and development of the selected construction crafts skills listed in part 3 section 8.7 of the framework draft.
- The framework recommends the establishment of a National Construction Apprenticeship Training Board (NCATB), distinct from the existing National Board for Technical Education (NBTE). It is recommended that the board should serve as an umbrella body to oversee the administration, implementation and overall regulation of the CCSTD scheme.
- One of the recommended responsibilities of the regulatory body is Educating the public through the mass media and other means on the need, importance and benefits of the CCSTD scheme to individuals and the national economy. It is expected that proper education will sensitize the young adults who are out of the formal school system to develop interest in skills acquisition, thus facilitating their recruitment process.
- Even though the framework advices that the trainees for the construction crafts training centres be recruited from the existing Junior and senior secondary schools across the nation based on adequate aptitude testing. The recommended target groups and avenues for trainees' recruitment as indicated in section 8.8.8.1 of the framework include:
    1. Unskilled youth that are out of school (with consideration to aptitude and Trade group).
    2. Non-skilled literate young Adults (with necessary consideration to aptitude and Trade choice).

In summary, the participant acknowledged that:

- The document is adequate
- The framework is detailed and comprehensive
- The proposals in the framework are relevant and appropriate
- The framework addresses the Nigerian construction sector crafts skills training needs.

8.16.2 Comments and Feedback from verifier 2:

- *I have painstakingly gone through the framework, I think it is a great one and you have made a very good effort. The framework is a well-completed job. The instructions and proposals under each of the section are clear and well detailed. The illustrations are straightforward and easy to follow.*
- *I suggest that after presentation, you can make a document out of it for implementation or proposal to concerned agencies and sectors.*
- *However, I don't know how you can incorporate the informal sector to the whole agenda; may be for development or training.*

8.16.2.1 Feedback Analysis (Verifier 2)

- The framework noted in section 8.3.12 that the informal apprenticeship training method is fraught will a lot of problems that hamper its effectiveness in producing competent skilled crafts-people for the Nigerian construction industry.
- The proposals in the framework is aimed at training of skilled construction craftsmen who will be well groomed in the basic theoretical courses that will ensure necessary KSAs that will enable them operate competently and independently.
- The framework however took cognizance of efforts of some professional bodies in organising skills developmental training programmes for craftsmen, most of who have acquired their skills through the informal apprenticeship methods.
- The suggestion on the presentation of the framework proposals to necessary authorities for implementation is noted; and this would be approached through publications in professional institution journals and presentations at conferences and workshop organized by relevant professional bodies.

In summary, the participant acknowledged that:

- The framework is a great and very good effort towards addressing the Nigerian construction industry crafts skills training and development problems.
- The framework is a well-completed job.

- The instructions and proposals under each of the section are clear and well detailed.
- The illustrations are straightforward and easy to follow.

8.16.3 Comments and Feedback from verifier 3:

- *The framework draft is very comprehensive.*
- *It is relevant to the present needs of vocational/Technical education in Nigeria.*
- *The evaluation of performance will assist in getting feedback from the industry on the trainees.*
- *The introduction of basic construction crafts into the framework is a welcome idea.*
- *The whole idea if well implemented will bridge the missing link.*
- *It will also improve relationship between the institutions and the industries.*

8.16.3.1 Feedback Analysis (Verifier 3)

- The framework took an in-depth look into the present strategies for vocational education and skills training in Nigeria and advanced proposals premised on data gathered both from secondary and primary research.
- The recommendations in the framework were made with the view to addressing important aspects of planning, implementation and regulation of construction crafts training and development.
- The qualifications structure for the construction crafts skills training and development scheme as proposed in section 8.8.7 of the framework was designed to be hierarchical with the view to overcoming the existing problems with career progression; which has been one of the prevalent setback and hindrance in attracting new comers into construction related crafts' careers in the nation's construction sector.
- As observed by the respondent, the evaluation and feedback mechanism proposed in the CCSTD framework is to ensure that the scheme is dynamic and to foster and

promote necessary collaboration and cooperation between the construction sector and the construction crafts skills training centres.

In summary, the participant acknowledged that:

- The framework draft is very comprehensive.
- The framework is relevant to addressing the present needs of vocational/Technical education in Nigeria
- The recommendation for the evaluation of performance of the scheme's graduates will assist getting feedback from the industry.
- The introduction of basic construction crafts into the framework is a welcome idea, which if well implemented will bridge the missing link; and the proposals in the framework will foster improved relationship between the skills training institutions and the construction industry sector.

8.16.4 Comments and Feedback from verifier 4:

- *The recommendations in the framework are relevant, applicable and comprehensive to address the Nigerian construction sector's crafts skills training and development issues.*
- *I would however recommend that the role of the NGO's be considered to kick start this initiative.*

8.16.4.1 Feedback Analysis (Verifier 4)

- The observations and feedback from this respondent also highlights on the relevance, comprehensiveness and applicability of the framework in addressing the prevalent crafts skills training and development challenges in the Nigerian construction sector.
- The respondent viewed as important; the roles of non-governmental organizations (NGO's) in the initial attempt towards the implementation of the construction craft skills training and development scheme.

- The framework recognises the intervention roles of the NGO's and recommended in section 8.8.9 that corporate effort and support from the three-tier of government, the construction private sector, Non Government Organizations (NGOs), Parents Teachers Associations (PTAs), and Community Based Organizations (CBOs) in funding will be of immense benefit to the CCSTD Scheme.
- The framework (section 8.3.14), also took cognizance of the collaborative effort of some NGO's with the NIOB in trying to organize skills developmental workshops for construction related Artisans.
- The framework thus acknowledges the fact that the contribution of the NGO's would be of paramount importance in the implementation and actualization of the proposals in the CCSTD Framework.

In summary the respondent acknowledges that:

- The recommendations in the framework are relevant.
- The framework is applicable to the Nigerian skills training and development situation.
- The framework is detailed and comprehensive and the recommendations and proposals can address the Nigerian construction sector's crafts skills training and development issues.

8.16.5 Comments and Feedback from verifier 5:

- *Materials for the framework compilation seemed to be well and rightly sourced to treat the subject matter.*
- *Submission is rich and comprehensive.*
- *The framework is applicable to addressing crafts skills training and development problems prevalent in the Nigerian construction industry.*
- *Some of the proposals in the framework are novel.*
- *The contribution will go a long way in solving the sector's crafts skills training challenges.*
- *It should however be noted that the framework may not be a one-for-all draft, when we consider the fact that Nigeria as a nation is still a developing country; and still evolving economically and politically.*

- *Political will and economic factors would need to be considered in the implementation of the framework.*
- *It is also observed that the draft is not without defects especially in the area of communication fluidity which is still above average anyway.*
- *The document did not also adequately address the continued relevance or otherwise of some of the Government policies on education; especially the 6-3-3-4 system.*

8.16.5.1 Feedback Analysis (Verifier 5)

- The framework proposals and recommendations were premised on relevant information gathered from documents available from various organizations concerned with vocational education regulation and funding in Nigeria.
- Sections of the National Policy on Education (NPE) on vocational and technical education were adequately analyzed with the view to exploring the variances in VTE policy implementation.
- Data elicited from both the primary and secondary research conducted in the course of the study provided a comprehensive and strong basis upon which the framework proposals were founded.
- The framework recommended the formation of a regulatory body to oversee the implementation of the CCSTD scheme; with representatives from the various tiers of government, the construction industry, construction related professional bodies and other relevant stakeholders.
- The regulatory body can propose necessary modifications in the implementation of the CCSTD scheme as would be occasioned by the evolving economic factors and political situations in the country.
- The existing education system of 6.3.3.4 or 9.3.4 is still relevant within the context of recommendations in the framework. The prospective target group or trainees for the CCSTD scheme are to be sourced from junior and senior secondary school system; which is within the present educational system.
- The framework recommended that, while the trainees for the construction crafts skills training and development scheme are recruited within the 6.3.3.4 education scheme; candidates who opt for university education can still proceed on the 6.3.3.4 education system.

- The framework was subjected to necessary editing to update semantic errors that were noticed.

In summary, this respondent acknowledged that:

- The materials for the framework compilation were well and rightly sourced to treat the subject matter.
- The submissions are rich and comprehensive.
- The framework is applicable to addressing crafts skills training and development problems prevalent in the Nigerian construction industry.
- Some of the proposals in the framework are novel; and the contribution will go a long way in solving the sector's crafts skills training challenges.

8.16.6 Comments and Feedback from verifier 6:

- *The framework is desirable as well as relevant to addressing missing gap in the crafts skills training required for the construction industry in Nigeria.*
- *The framework is quite comprehensive as it took cognisance of the various parties and stakeholders involved in the crafts skill acquisition process.*
- *It is adequate in a way but not altogether (see the views that follow).*
- *The implementation is very core*
- *The three years CCST duration is good but there must be incentives.*
- *Note that the migration of skilled craftsmen to works that fetch them quick and easy money is a function of the attitude/frame of mind of the average youth. The framework must take this into consideration.*

Suggestions:

- *Try to include in your review the Ministry of Housing and Urban Development's construction crafts and skills training programme. Even though the scheme has failed altogether, acknowledging its existence and documenting its inability to provide the necessary skill development adds value to the work.*

- *A review of what obtains in the neighbouring countries (Ghana and the francophone countries along the West Coast may throw more light and help refine the framework.*
- *The advocacy for crafts skill acquisition needs to be included.*
- *Collaboration is desirable and good. In collaborating (see your section 8.6.1) we must take cognisance of the Acts establishing these "collaborating agencies". The ease with which they can collaborate would depend on the Acts establishing them and their statutory functions.*
- *You may have to pay more attention/prominence to the professional associations as major drivers of the collaboration than the regulatory agencies.*
- *The professional associations would be more flexible than their regulatory agencies. They could also provide the advocacy drive faster and better.*
- *The steering agency may be called to question in terms of acceptability by all stakeholders. This area requires more thought. A collaborating agency may be more appropriate.*

8.16.6.1 Feedback Analysis (Verifier 6)

- The framework recognises the need for incentives to ensure that the drop-out rate of the CCSTD scheme is kept to the barest minimum, and recommended that the trainees be made to 'earn while they learn (section 8.8.6). The scheme's trainees are therefore to be engaged by the collaborating construction firms as 'trainees' employees' on appropriate wages scale.
- The framework recognises the need to consider the poverty level and economic situation of the Nigerians youth and unskilled men and women population for which the CCST scheme is targeted coupled with the construction sector's skilled crafts manpower need along with the need to overcome the barriers to new entrants into construction related crafts skills.
- The framework views it imperative to consider the need to secure the interests of the youth and effectively shift their focus from non-skill menial occupations

to which many of them may be currently engaged, and get them motivated, mobilised and recruited for the CCST scheme.

- Thus the framework recommended that the CCST scheme be funded through the partnering or collaborative efforts of the government, the private construction sector, NGOs, community based and international organisations TVE aids.
- The framework is mindful of the migration of skilled craftsmen to other ventures that fetch them quick and easy money, this phenomenon has aggravated crafts skills shortage in the construction sector in the recent past.
- The framework recommended that the CCSTD scheme's regulatory organ should liaise with relevant government agencies and stakeholders, to initiate policies that will ensure that appropriate hourly/daily rate or wage scales and job related incentives is approved for Artisans. It is hoped that this will serve as motivation, reduce migration and ensure that the CCSTD scheme's graduates continues and progresses on the careers for which they have been trained.
- The framework recognizes the need for flexibility in the collaborative efforts both for advocacy, and implementation of the CCSTD scheme and recommended that relevant construction related professional bodies in consultation with their registration councils, along with relevant associations and government ministries to collaborate for advocacy and actualization of the CSCSTS.
- The framework acknowledges the need for a collaborative effort in the initiation of the CCSTD scheme and recommended that the NIOB liaises with other agencies in the steering efforts for the scheme's implementation.
- The proposals in the framework took cognizance of crafts skills training strategies in use by selected developed and developing countries, with the view to gaining insight into possible approaches that might be applicable to the training and development of construction related crafts in the Nigeria construction sector; considering the economic, social, political and cultural setting in the nation.

In summary, this respondent acknowledged that:

- The framework is desirable as well as relevant to addressing missing gap in the crafts skills training required for the construction industry in Nigeria.

- The framework is quite comprehensive as it took cognisance of the various parties and stakeholders involved in the crafts skill acquisition process.
- It is adequate in a way.
- The implementation is very core hence adequate care would need to be taken to ensure that the recommendations in the framework are well implemented.

8.17 Summary of Findings from the Validation Process

The validation exercise elicited constructive, positive and very encouraging feedback from experienced and well informed professionals within the Nigerian construction sector. The feedback from these respondents is a confirmation that the framework and the strategies proposed therein, if adequately and correctly implemented; could serve as a versatile and potent tool in addressing construction crafts skills training and development problems in the Nigerian construction industry. These are exemplified by the following views expressed by the professionals who participated in the framework validation exercise:

"The document is adequate, comprehensive, relevant and appropriate to address the Nigerian construction sector crafts skills training needs".

(Verifier 1)

"I think it is a great one and you have made a very good effort. The framework is a well-completed job. The instructions and proposals under each of the section are clear and well detailed. The illustrations are straightforward and easy to follow".

(Verifier 2)

"The framework draft is very comprehensive. It is relevant to the present needs of vocational/Technical education in Nigeria. The whole idea if well implemented will bridge the missing link. It will also improve relationship between the institutions and the industries".

(Verifier 3)

"The recommendations in the framework are relevant, applicable and comprehensive to address the Nigerian construction sector's crafts skills training and development issues".

(Verifier 4)

"Materials for the framework compilation seemed to be well and rightly sourced to treat the subject matter; the submission is rich and comprehensive. The framework is applicable to address crafts skills training and development problems prevalent in the Nigerian construction industry. Some of the proposals in the framework are novel. The contribution will go a long way in solving the sector's crafts skills training challenges".

(Verifier 5)

The framework is desirable as well as relevant to addressing missing gap in the crafts skills training required for the construction industry in Nigeria. The framework is quite comprehensive as it took cognisance of the various parties and stakeholders involved in the crafts skill acquisition process. It is adequate.....The implementation is very core.

(Verifier 6)

The above assertions by the framework verifiers confirm that the CCSTD framework, which is the outcome of this research; would serve as a best practice guide to the Nigerian construction industry in the planning and delivery of crafts skills training and development if adequately implemented.

8.18 Section Summary

This section of the chapter reports the industry validation of the framework for enhancing effectiveness in the training and development of construction crafts skills in the Nigerian construction sector. The section opened with the explanation of the process adopted in the validation process. The validation exercise was limited to the Nigerian construction industry because the framework aimed at addressing crafts skills training problems within the sector; hence external validation outside the industry was deemed not necessary. The profile of the selected verifiers and the criteria for their selection were also outlined, while the comments and suggestions of each of the

verifiers were highlighted, analyzed and reflected upon in the feedback and analysis section. The framework was adequately up-dated to accommodate relevant suggestions that could enhance its potency in addressing craft skills training and development issues within the nation's construction sector. Summary of findings from the validation process reveals that the framework is not only comprehensive, but relevant, novel and valid in addressing crafts skills training and development within the Nigerian construction sector.

9.0 Conclusions and Recommendations

9.1 Aims of the Chapter

This last chapter of the thesis presents the conclusions and recommendations drawn from the study. It highlights the summary major findings from the research with regards to the aim, objectives and questions of the study. The chapter further underscores the major conclusion of the research and confirms the novelty of the research outcome and explains its significance and implications for the Nigerian construction industry. The chapter indicates the study recommendations, identifies the limitations of the research and gives a critical evaluation of the study. Relevant areas for further research to enhance the CCSTD framework are presented; while a chapter summary concludes the chapter.

9.2 Summary of Research Findings

Based on the primary and secondary researches undertaking in the course of this study; specific findings premised on the aim and objectives of the research are presented under the various questions of the study as indicated below:

1. *What skill training method(s) proved effective in producing needed craftsmen for the Nigerian construction sector in the past?*

- Apprenticeship training, which dated back to pre-colonial era, was the most predominant type of on-the-job training. It is a type of on-the-job training which usually takes relatively long periods of training for specific levels of skills such as bricklaying/blocklaying, concreting, carpentry, plumbing, welding and other core construction trades. It was also evident from the analyses that another common method for training and producing construction related tradesmen in Nigeria over the years has been through the Trade centres and Technical colleges. These institutions during the pre 1970s and up to the late 1980s pursued vocational curricula that focused on the combination of classroom instruction, which involved training in basic material sciences and numeracy with hands-on intensive workshop and laboratory work; coupled with practical site hand-on training which prepared the trainees for the world of work.

- The crafts training method adjudged currently to be most effective is the formal apprenticeship method; which is a combination of classroom instruction with practical site work. The vocational Training Institutes (VTIs) which are supposedly established to run formal apprenticeship training programmes in Nigeria at present are the Science and Technical Colleges (STCs), Vocational Innovation and Enterprise Institutes (VIEIs). However, these training institutes are confronted with divers odds that militate against their effectiveness in training and producing competent skilled crafts graduates. The training focus of these VTIs has also shifted from training and preparing trainees for the field of work to qualifying them for further education in the university and other institution of higher learning.

2. *What are the factors responsible for craft skills shortages and skills gap in the Nigerian construction sector?*

The problems confronting VET were found to be responsible for craft skills crisis being experienced in the nation's construction sector. Some of the identified problems confronting construction crafts skills training and development include the following:

- Poor funding of vocational education and training (VET): The major financier of TVE is the government. The annual budget for VET is lumped with that of general education, and the dwindling government resources prevent sufficient allocation of fund to ensure and sustain the effectiveness of TVE. In most cases such allocated funds are misappropriated by those charged with their management and disbursement.
- Shortage of modern training facilities in the existing vocational education training centres: The necessary training facilities for practical work instruction in the crafts training institutions are either obsolete and unserviceable or non-existent due to shortage of funds to replace or upgrade them. As a result, crafts training take the theoretical rather that the practical approach. The implication of this is that the trainees are not exposed to the necessary practical skills that will make them work confidently and independently on graduation; hence many of the VTIs graduates take to other business ventures rather than practice their trades. The construction companies and other employers are wary of engaging

half-baked vocational education graduates who will require extensive resources to train before they can be productive. Hence, they prefer recruiting crafts related work people from neighbouring countries or from among the few locally available experienced craftsmen.

- Absence of a functional and effective Crafts-skills Training Framework (CSTFW): Findings from both literature and surveys agreed to the fact that construction related crafts skill training within the Nigerian education and training system lacks a well articulated and industry specific training framework that is functional and focused. The TVET approach as reflected in the Nations education policy is rather general and shallow in addressing the training of needed crafts skills workforce for the construction sector which is a major driver of national development and an indicator of economic growth. The implementation of the designed strategy for TVE is also defective, because the emphasis has been shifted from equipping trainees with marketable and employable skills to preparing them for passing qualifying examinations for further and higher education. This has implication for the nation's construction industry and the national economic as a whole, because substandard crafts skills training will produce ill-equipped and incompetent graduates who are not fit for productive work within the industry for which they are trained. This aggravates crafts skills shortage and skills gap problem in the construction sector, encourages the engagement of migrant crafts people and promotes capital flight with the consequent effect of further crippling of the nation's economy. This finding further reinforces the importance and relevance of this research which has developed an industry specific framework for the training and development of craftsmen and women for the Nigerian construction industry.
- Another problem identified to be confronting the effectiveness of TVE in producing the needed competent skilled craftspeople for the construction industry in Nigeria is the lack of commitment to the pursuit of policies on Technical and Vocational Education (TVET) by the various successive tiers of government. Findings from both surveys and literature confirmed non-implementation, abandonment and truncation of policies on TVET as issues hampering the training of Artisans for the industrial sector in the nation.

- Inadequate participation and lack of commitment of construction industry's private sector to VET was also identified as a militating factor to the training of craftsmen. The commitment of the construction industry organized private sector is, in most cases, limited to the education taxes paid to the ETF and ITF. Construction companies are not demonstrating enough support for the student industrial work experience scheme (SIWES) which is meant to provide trainees with hand-on practical work experience. Rather than employ new entrants for training, companies prefer to engage experienced hands. In-house skills development trainings are not being organized by the construction firms, consequently, the available craftspeople are not developing in their KSCs and fresh hands are not trained to step into the shoes of the ageing work force; thus compounding the crafts skills shortage problems.
- Application of defective training and instructional methods in TVET coupled with insufficient practical work instructions in the TVET curricula were also identified as other twin phenomena confronting craft skills training and development within the construction sector. These problems are not unconnected with the non-availability of modern training facilities and absence of functional training framework.
- Shortages of Vocational Education (VE) instructors in the existing VTIs also affect the effectiveness of TVE because technical teachers are not finding the job fascinating due to underfunding of the institutions. Experienced teachers prefer to remain in the industry or look elsewhere for greener pastures rather than take-up teaching appointments with the VTIs.

3. *In what way(s) are the problems confronting VET contributing to knowledge gaps among construction craft workers in Nigeria?*

- The study identified that problems confronting TVET deprive the trainees the knowledge, skills and competencies (KSCs) they suppose to acquire in the course of their training; and consequently affects their productivities and performances after graduation, in form of low productivity and low standard job-output. The VTI graduates lack the confidence to operate without close supervision and monitoring, hence many of them are un-employable and incompetent to become self-employed thus aggravating the skills gap and shortage crisis.

- The militating factors against the effectiveness of VE also have implications for the number of seasoned and competent craftspeople supplied to the construction sector. The number of candidates admitted for training is reduced because the available infrastructural facilities and other resources at the disposal of the VTIs are over-stretched due the limited number available. This is already evident in form of craft skills shortages and knowledge gap among the available craftspeople in the Nigerian construction sector.

4. *Why are most Nigerian youth not showing interest in construction related skills acquisition and how best can they be mobilised for skills training?*

Findings from the quantitative and qualitative surveys identified the factors that pose as deterrent to the majority of the younger generation showing interest in acquiring construction related skills to include:

- Lack of adequate guidance and counselling as to the importance, prospects and relevance of crafts as a viable career.
- Lack of adequate forum for mobilising and securing the interest of youths for skills acquisition.
- Poor remuneration or rate of pay for construction site workers.
- Lack of clear career development path for craftspeople.
- Too much emphasis on secular/general education at the expense of craft skills acquisition.
- Lack of job security and employment continuity in the Nigerian construction sector, because craftsmen are in most cases 'mono-skilled' rather than 'multi-skilled'. Also the practise of SME's is not encouraged.
- The social vice of 'get rich quick' syndrome or orientation prevalent in the nation.
- Lack of encouragement and motivation from the political class and government hierarchy for the youth to take to crafts as careers.

- The age-long 'image' problem of lack of respect, recognition and dignity for Artisans; coupled with the views that construction site work is too degrading and difficult.

- Lack of adequate provision for the protection, health and safety of site workers in the nation's construction sector was also identified as a militating factor.

Findings from the study underscored the following as approaches that could enhance and sustain the interests of youths in acquiring construction related crafts-skills:

- Making career guidance and counselling mandatory at the junior and secondary school levels.
- Making craftsmen wages attractive.
- According adequate recognition to TVE and ensuring dignity of labour for craftsmen.
- Making crafts-skills trainees earn while they learn and CST or TVE free for willing youth.
- Provision of adequate funding for TVET while de-emphasizing non-skilled general education.
- Re-engineering general education to be practical skills oriented and making skills instruction mandatory at junior and senior secondary education levels.

5. *What effective strategies are other countries adopting to address construction crafts skills training to curb labour shortages?*

Findings from secondary research and primary studies carried out in the UK on the strategies other countries are adopting to enhance crafts skills training to ensure sustainability in the supply of skilled crafts people to the construction sector revealed that:

- The principle upon which vocational education development is based in some of the countries is that of equal emphasis on both quantity and quality.
- Adequate regulation through the establishment of regulatory bodies to oversee the administration of construction industry crafts skills training and development.
- Provision of adequate funding and dynamism of innovations in constantly addressing construction sector craft skills training problems.

- Skills training and development matters in the construction sector in most countries are regarded not as prerogative of the government but a collaborative effort of both the government and the industry. Under the unflinching support and encouragement of the government, both the public training and the industry-based training are well-developed; vocational training centres are well stocked with modern, state of the art facilities and equipments with updated curriculum.

6. *How can the organized private sector positively impact craft skills training and development in the Nigerian construction sector?*

- Low-participation of construction industry's private sector (CIPS) in the training and development of craftsmen is a major factor militating against effective training of craftsmen in the Nigerian construction industry. The efforts of funding and management of CST should be collaborative rather than a sole responsibility of the government. Regulatory councils of the various construction related professional bodies along with the allied construction industry professional bodies need to participate fully in the planning, organising, monitoring and funding of construction related CST. The private construction sector should be encouraged to participate in the provision of facilities, and collaborate with VTIs and other interest groups.
- Other ways by which the CIPS can positively support the training of construction related craftsmen in order to enhance its effectiveness include: Accepting vocational education students and crafts apprentices for work experience; establishing training schools for CST and development; establishing private vocational training centres for the training of youths in their areas of operation; purchasing tools and equipment for VTIs; sponsoring craftsmen for further skills training and continuous professional development (CPD) workshops and conferences; collaborating in the trade-testing and certification of VTIs' Trainees.

9.3 Conclusions

Skills training and development of construction related craftspeople is imperative for the growth of the Nigerian construction sector and the development of the nation's economy as a whole. The construction sector's products (in form of buildings and other infrastructural facilities) are essential for enhancing productivity in other

industrial and public sectors of any nation, the sector is therefore a major driver of economic growth and its productivity is an indicator of national development.

Emerging facts from both the primary and secondary research conducted in the course of this study indicates that the contextual framework within which the systems of skills training and development currently operate in Nigeria is, evidently, characterised by:

- lack of a detailed and industry specific training and development framework for the construction industry;
- defective and low quality skills training delivery systems;
- unregulated and uncoordinated training delivery systems;
- poor monitoring and evaluation mechanisms;
- inadequate funding and lack of necessary training facilities;
- indifference of the construction sector role players in crafts skills training and development;
- large numbers of unskilled, unemployed and poorly educated youth who are not interested and not motivated for skills acquisition;
- absence of sustainable process for mobilising the youth for construction related skills acquisition;
- poor public perception and image of construction related crafts careers, and
- too much emphasis on general education.

Various reformations and innovations have been embarked upon in an attempt to make TVE relevant and effective in producing the needed skilled craftspeople for the industrial sector in the nation. However, despite all the previous reforms and innovations, the expected effectiveness in the training of crafts skills careerists for the industrial sector is still far from becoming a reality. Furthermore the specific

need for the training and development of competent and productive crafts skills persons for the construction sector has not been particularly addressed.

9.4 Novelty of the CCSTD Framework

This study, through original research work conducted in form of detailed and extensive literature search, pilot studies, questionnaire survey, qualitative interviews and document analysis; has produced a unique and industry specific framework for the training and development of crafts skills within the Nigerian construction sector. The earlier listed factors which characterised the present training delivery system inter-alia, were adequately addressed in the framework.

The novel, knowledge based framework, which emerged from the study has been validated by the sector practitioners. The feedback from the framework validation exercise (see chapter 8) attested to its novelty and contribution to the body of knowledge.

The emerging framework is the first of its kind and serves as the only available best practice guide for the effective planning, implementation, monitoring, and evaluation of crafts skills training and development in the Nigerian construction industry.

The framework encompasses major issues bordering on the regulation, trainees' recruitment, delivery approach, industry participation, funding, assessment and certification, skills development, career progression, post implementation evaluation and strategies for achieving effectiveness and sustainability in skills training and development.

9.5 Significance of the Study

The prevalent and perennial problems confronting the training, development and production of competent crafts skills careerists for the Nigerian Construction sector, informed the quest for the formulation of a comprehensive and functional Framework; which can tackle the identified lapses and ineffectiveness in the existing crafts education and training policies and ensure sustainability. Thus the relevance of this research that developed and validated a Framework which if adopted and

adapted will ensure sustainability and effectiveness of crafts skills training and development within the Nigerian construction industry.

The significance of this original knowledge based framework and its distinctive contribution to the body of knowledge on the subject of crafts skills training and development is as indicated in its relevance to guiding the actions of the various stakeholders and highlighted under the various headings below:

1. Governments

The framework is applicable and relevant to serving as an impetus and a guide for the various tiers of governments in the nation to:

- improve on the coherence of regulation and management of VET in the various industrial sectors in the nation;
- guide the introduction of policies and incentives that will support increased private sector participation in TVET delivery;
- provide insights into investment in training materials and equipment;
- serve as a guide for the government to invest on the training and development of VET instructors and thus enhancing the status and KSCs of the instructors;
- provide a basis for constant monitoring and periodical evaluation of the performance of TVET with the view to applying corrective measures for needed improvements;
- accentuate government's funding and support to skills training and development matters in the nation's industrial sector; and
- coordinate government approach to giving legislative backing to national TVET policies for enhanced sustainability of skills training and development in the construction sector.

2. Construction industry private and public sector

The framework can be adopted by the private and public construction sectors as employers of construction craftspeople as a guide for:

- structuring and delivery of workplace training to employees for the purpose of up-skilling;
- guiding financial contribution and support for the construction industry skills training funding;
- educating and guiding the sector on participation and support in providing practical work experience opportunities for vocational skills trainees and trainers; and
- directing efforts towards the improvement of national skills delivery standards.

3. Skills training providers

The framework is applicable to the actualization of the visions and missions of both public and private vocational skills training providers, by providing the relevant and basic criteria for:

- developing business plans that will actualise the sector's training goals of producing confident, competent and productive vocational skills career people on a sustainable basis;
- aligning training delivery strategies to be compatible to the national policy framework;
- guiding the approaches to establishing strong linkages and collaboration with employers and industry;
- strengthening the approach to guidance and counselling services to skills trainees; and
- providing a basis for networking with other providers and bench-marking and improving on training delivery quality.

4. NGO's, Donors and other development partners

The components and proposals of the framework are relevant and applicable in providing necessary motivation and guidelines for Donors' in the areas of:

- supporting advocacy for the nation's TVET initiatives;

- conducting researches on VET funding and advocacy;
- directing efforts on supporting the development of national VET strategies and policies;
- mobilising support for capacity building in the nation's VET agenda; and
- guiding approaches to identification and dissemination of best practices in vocational skills training and development.

5. Parents and Guardians

The framework is also applicable in that it can illuminate and re-direct or guide the actions of parents and guardians to:

- inspire and support their children and wards to consider vocational education stream as viable options;
- support the nations policies on TVET and compliment the activities of training providers by giving appropriate moral and funding supports;
- lobby politicians in favour of TVET; and
- reject the perception that vocation education is for the less academically endowed students who could not succeed in other fields.

9.6 Benefits and Contributions of Framework to the Nigerian Construction Sector

The CCSTD framework developed and validated as an outcome of this study comprehensive and includes the needed structures, specifications and procedures which if adopted and appropriately implemented will improve vocational skills training and development within the Nigerian construction sector by:

- improving the coordination and regulation of vocational crafts skills training;
- promoting private sector participation in training;
- attracting new entrants into construction related skills acquisition;

- enhancing sustainability of skills training and development in the construction sector;
- facilitating crafts skills training implementation; and
- ensuring a regular supply of adequately trained competent and productive craft skills careerist within the Nigerian construction sector.

9.7 Recommendations

Reflecting of the comprehensive and broad nature of the CCSTD's best practice framework developed and validated through this research project, and drawing from the study significance and benefits as indicated in sections 9.5 and 9.6; the proposals and component sections of the framework are recommended to various interest groups and stakeholders concerned with vocational crafts skills training and implementation. The relevant parties include:

1. The construction industry private sector

The construction industry private sector in Nigeria would find the framework relevant and valuable in identifying the input they can make towards construction related crafts skills training and development. The concerns for skilled construction crafts labour shortage in the industry can be adequately addressed through the adoption and implementation of the proposals advanced in the framework. The Federation of Construction Industry of Nigeria (FOCI) who is the direct and major benefactor from crafts skills practice should support skills training through adequate cooperation and collaboration in funding and provision of practical industry training facilities and support for construction crafts skills trainees and trainers.

2. The allied construction industry professional bodies in Nigeria

The construction industry professional bodies in Nigeria would find the framework a ready tool for collaborative efforts to pursue the issue of a policy framework with relevant government agencies and other stakeholders. It is recommended that the relevant members of the Association of professional bodies in Nigeria (APBN) should adopt the proposals in the framework, to collaborate with the government and

other stakeholders in the development of a National Vocational Qualifications Framework (NVQF) which is indispensable for bringing coherence into skills training and development system. The recommendations in the CCSTD framework prescribed qualification structure, proficiency requirements and certification standards which will instil confidence, promotes progression, attracts more trainees and enhance the sustainability of skills training and development.

3. *Federal and States Ministries of Youth Development, Employment, Labour and Productivity, Education and related ministries.*

The nature of VET is varied and its scope is longitudinal and broad. Therefore, the implementation of any strategy to revitalize the sector can only be effective in achieving the desired objectives within a national policy framework with clear guidelines for its implementation. The policy roles for the various actors as well as plans of action for resource mobilisation and allocation would also required detailed specification. The various ministries that have a stake in VET and skills development could articulate on the proposals in the CCSTD framework developed and validated in this research; to influence the various tiers of governments to develop a national TVET policy that will set out the vision of the government for skills training and development for the nation's industrial sector.

4. *Privately owned vocational skills training providers*

The framework provides a basis for the existing and future skills training providers to re-structure their strategies to enhance relevance and effectiveness in the training of competent crafts skills professionals. The proposals of the framework on the delivery mode to ensure that training is linked with the world of work are recommended for adoption by privately owned training providers. This will enhance the employability and self dependence of skills training institutions graduates, promotes self employment and reduce poverty.

5. *Other industrial sectors in Nigeria*

The problems of crafts skills shortages, training and development cut across the entire industry sector in Nigeria. Other industrial or manufacturing sectors of the economy in the nation would find the components and recommendations in the

framework valuable, and relevant to serve as a spring-board for the development and actualization of their sector's crafts skills training and development policies.

6. Federal, States and Local governments in Nigeria

Vocational Skills Training (VST) and development is a potent tool for empowering the people of Nigeria, especially the youth, for sustainable livelihoods and for the nation's socio-economic development. The guidelines in the Framework are recommended for adoption by the various tiers of government to:

- provide guidelines for devising strategies that will enhance quality delivery of skills training and development;
- improve coherence and management of skills training and development;
- assure employability of VTIs graduates;
- enhance status and attractiveness of vocational skills acquisition so that the interests of the teaming youths population in the country are secured and sustained; and
- promote life-long learning that will continually improve and update the KSCs of practising construction related craftspeople.

Furthermore, considering the new direction and focus of the government towards enhanced capacity for value addition, employment generation and industrialisation as indicated in the NEEDS and SEEDS documents; the following recommendations premised on the accomplished goals of the research are imperative:

1. Enhancement of Quality of Construction Crafts skills training and development:

High quality skills training and development requires adequate provisions of training tools and equipment, and adequate supply of training materials. Other criteria include availability of relevant textbooks and training manuals and seasoned trainers with adequate industry-based experience. Competency Based Training (CBT) which is, learning by doing and coaching; recommended in the framework is very relevant in enhancing skills training quality. For the purpose of quality enhancement,

it is recommended that these criteria and principles proposed in the CCSTD framework, be incorporated in the nation's formal TVET system.

2. Improvement of Regulation and Management of skills training and development:

Apart from establishing a body for the regulation of construction related skills training and development, it will be necessary that the Nigerian government establish a national agency or body that will be solely responsible for coordinating and driving construction related craft skills training system. The body could be under the aegis of the ministry of education or be a separate and autonomous agency. As indicated in the framework, the coordinating agency should embrace representation from all relevant stakeholders, including government policy makers, representatives from industrial sector and private employers, public and private training providers and professional institutions. Such a move will ensure adequate regulation and management of the training of competent crafts careerists for the nation's construction sector.

3. Assuring employability of VTIs graduates

Accomplishing the goals of assuring the employability of VTIs' graduates is predicated on provision of avenue for effective guidance and counselling for prospective trainees on the choice of trades and training options in relation to their aptitudes, academic backgrounds and abilities. Also, employability depends on the acquisition of employable skills that are congruent with the demands of the labour market. These issues were detailed in the CCSTD framework; and it is recommended that the various levels of government in Nigeria synergise to adopt the proposals of the framework on provision of adequate facilities for effective guidance and counselling of the youths; as well as incorporating and enforcing the strategies on Construction Site Work Experience Attachment (CSWEA) for CCST Scheme Trainees' in the national VET system.

4. Enhancing status and attractiveness of vocational skills acquisition

There is an urgent need for the government to device strategies that could secure and sustain the interests of the teaming youth population in the country. Crafts skills training and development cuts across the entire industrial sector of the nation, it is

also the bedrock for addressing poverty and unemployment problems, curbing youth restiveness, and ensuring national economic growth and development. The recommendations in the framework on enhancing the attractiveness of skills acquisition and tackling the image problems confronting vocational skills acquisition needs to be adopted in the nation's TVE agenda.

5. Promoting life-long learning

The framework also specified strategies for skills development among vocational education graduates and that of the trainers. These approaches are recommended for adoption in the overall government's TVE agenda. This will reveal shortcomings that will lead to development of specific plans to continually improve and update the KSCs of practising construction related craftspeople and trainers.

The procedures recommended for the CCSTD's scheme evaluation and post implementation assessment, if adopted in the implementation of the nation's TVE agenda will undoubtedly promote life-long learning in the industrial sector.

9.8 Limitations of the Research

The research and its outcome are limited to the Nigerian construction industry. The data collection for the study, though broad-based and representative; was limited to the nation's construction industry. The documents accessed for analysis were also limited to those related to the Nigerian TVET. However literatures on the strategies for VET in other selected economies were reviewed to serve as a guide in the compilation of the CCSTD framework. The formulated framework was also structured with the backdrop of the Nigerian socio-economic situation and within the context of the existing training and education system.

9.9 Critical Evaluation of the Study

The research provided an opportunity for exploring into skills training and development in the Nigerians construction sector. It also affords an insight into the problems and prospects of skills training in the sector. The pilot studies conducted in the course of the study facilitated the achievement of the research objectives. The

quantitative data analysis provided a factsheet for providing answers to the questions of the study, while the qualitative data elicited in the course of conducting the research generated exhaustive information on the opinions of the various role players in the sector. The literature search also provided an overview of skills crisis and training situation in Nigerian construction industry and those of selected nations around the world. Further analysis and exploration of the findings of the study led to the formulation and validation of a best-practice and sustainable skills training and development framework for the Nigerian construction sector.

Reflecting on the strength and weaknesses of the study, the study could be said to be strong in the rich data or information generated, which were quite revealing, fascinating and culminated in the formulation and validation of the CCSTD framework. The feedback from the validation exercise attested to the veracity and capability of the framework in addressing skills training and development issues in the Nigerian construction sector. However the data elicited through the literature search and document analysis were limited to available, relevant and accessible materials. The interview enquiry also adopted the telephone interview approach. The interviews, though exhaustive and in-depth in each case; due to the facilities provided by the university and cooperation and support from the respondents, might not be as effective as the face to face interview approach.

9.10 Suggestions for further study

The usual trend in research is that one research serves as pre-cursor to further research. Findings from both the secondary and primary research conducted in the course of this study supports this phenomenon, and indicates that future studies is imperative; to advance the attempts towards addressing the problems confronting vocational crafts training and development in the Nigerian construction sector. Such research will further reinforce the task accomplished in this study. Major areas identified and recommended for further exploration include:

1. The delivery of quality vocational skills training is dependent or premised on the Knowledge, Skills and Competencies (KSCs) of the trainers; competence measured in terms of theoretical knowledge, technical and pedagogical skills as

well as being up-to-date and abreast with latest innovations and new technologies in the areas of specialisation. Further research aimed at formulating a framework for modelling the Training Needs Analysis (TNA), and for designing and delivering KSCs' boosting trainings for the instructors participating in the construction crafts skills training and development scheme is recommended.

2. The issue of funding is of paramount relevance in sustainable training delivery. It would be a worthwhile effort to conduct further research that will monitor the effectiveness of the CCSTD scheme funding strategies. The study can look into the trend of scheme's budget and funding using a number of fiscal years of implementation as a case study; with the view to identifying shortcomings or bureaucratic bottlenecks and ways of addressing such identified problems.

3. The present education and training structure in Nigeria is structured in such a way that vocational education and training forms a separate parallel system within the education system, with its own institutions, curricula, and instructors. This style tends to accentuate or reinforce the perception of inferiority of the vocational tract. It will be necessary to embark on a research that will develop a framework that will focus on the articulation of pathways between vocational education and general education in the nation's education and training system.

4. There is need for devising an avenue for youths who drop out of the formal school system to learn a trade and re-access the formal vocational school system to upgrade their skills, either on a part-time or full-time basis. In the same vein, regular vocational school students should be able to acquire relevant practical skills in the non-formal sector. However, the framework emanating from this research had training delivery in a formal setting as a focus. Future research focusing on creating a linkage between formal and non-formal vocational training delivery would be a worthwhile effort.

5. This current research focused on developing and validating a framework that specifically addressed the issue of crafts skills training and development in the Nigerian construction industry. Future research that will develop and validate framework that addresses skills training issues in other industrial sectors will be of utmost relevance to the nation's economic development.

9.11 Chapter Summary

This is the concluding chapter of the thesis. The chapter opened with a highlight of the aim of the chapter and indicated the summary of findings from both the secondary and primary researches embarked upon in the course of the study. The analyses of data elicited from the study formed the basis for the development of the CCSTD framework. The summary of the research findings deliberated on how the research questions were answered. The chapter gave a summary of the major conclusions of the study and identified the novelty and significance of the research; the benefits of the research outcome to the Nigerian construction sector were also highlighted. The study conclusions and significance were followed by the recommendations premised on the outcome of the research. The identified limitations of the research were presented, followed by a critical evaluation of the study which highlighted the perceived strengths and weaknesses of the research project. The chapter closes with the identification of some relevant areas for further exploration.

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APPENDIX 'A'

Sheffield Hallam University

EDUCATION AND TRAINING OF SKILLED OPERATIVES IN THE NIGERIAN CONSTRUCTION INDUSTRY.

This questionnaire is an important aspect of an ongoing PhD Research which aims at formulating a best practice Framework for the training of construction related skills to curb skilled labour shortages in the Nigerian construction sector.

The research objectives include determination of the challenges facing vocational/skills training in Nigeria, establishing the reasons the youth generation seems not to be showing interest in skills acquisition and how best they could be mobilized for skills training; reviewing of the approaches of selected developed nations to skills training with the view to adopting relevant innovations in the emerging framework.

Your **candid and prompt response** to the following questions will immensely contribute towards achieving the aim and objectives of this research.

Every opinion you indicate will remain completely private and confidential.

Thank you very much for the anticipated cooperation and quick response.

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RESEARCH QUESTIONNAIRE

SECTION ONE - ABOUT YOUR STATUS

Please thick [√] and indicate in writing [↘] as appropriate.

1. Professional Affiliation: **[a]. i.** Building [ ] **ii.** Architecture [ ] **iii.** Quantity Surveying [ ] **iv.** Civil/Structural Engineering [ ] **v.** Estate Surveying [ ] **vi.** Vocational/Technical Educator [ ] **vii.** Any other (please indicate).....

[b]. i. Polytechnic/Technology Student [ ] **ii.** Technical Teachers' Education Student [ ] **iii.** Vocational/Technical College Student [ ] please indicate Trade..... **iv.** Building Tradesman/Craftsman [ ] please indicate Trade.....
v. Youth without an handcraft [ ] **vi.** Any other (please indicate).....

2. Professional Practice Area: **i.** Consultancy [ ] **ii.** Contracting [ ] **iii.** Training/Education [ ] **iv.** Project Management [ ] **v.** Any other (please state).....

3. What is your age bracket? **i.** 15-19 [ ] **ii.** 20-25 [ ] **iii.** 26-30 [ ] **iv.** 31-35 [ ] **v.** 36-40 [ ]

vi. 40-45 [ ] **vii.** 46-50 [ ] **viii.** 51-55 [ ] **ix.** 56-60 [ ] **x.** 60-65 [ ] **xi.** Above 65 [ ]

4. Years of experience in the Construction Industry: (if applicable). **i.** 1-5 [ ] **ii.** 6-10 [ ] **iii.** 11-15 [ ] **iv.** 16-20 [ ] **v.** Above 20 [ ].

5. Number of Construction Projects involved in the last 10 years: (if applicable). **i.** 1- 5 [ ] **ii.** 6-10 [ ] **iii.** 11-15 [ ] **iv.** 16-20 [ ] **v.** Above 20 [ ]

6. Your present highest educational/Professional qualification?

i. No basic/formal education [ ] **ii.** Standard six [ ] **iii.** Primary/First school certificate [ ]

iv. Trade test [ ] **v.** City and Guilds of London Certificate [ ] **vi.** Technical school

certificate [ ] **vii.** WAEC Technical/NABTEB [ ] **viii.** OND [ ] **ix.** HND [ ] **x.** NCE [ ]

xi. BSc [ ] **xii.** PGD [ ] **xiii.** MSc [ ] **xiv.** PhD [ ] **xv.** Any other (professional

qualifications).....

SECTION TWO - ABOUT NIGERIAN VOCATIONAL EDUCATION AND TRAINING

(Kindly indicate your opinion about issues related to Craftsmen's/ Vocational Education and Training in Nigeria by ticking [**√**] the number that matches with your candid opinion on the scale of 1-5*), and explaining in writing [↘] where appropriate.

Note: SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1).

Q1. *Listed below are various methods of skills training. Please indicate the extent to which you agree/disagree which method proved effective in the training of* ***Craftsmen*** *for the Nigerian Construction Industry in the past 30 years.*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. Informal (local) apprenticeship Training method	[ ]	[ ]	[ ]	[ ]	[ ]
b. Trade Centres	[ ]	[ ]	[ ]	[ ]	[ ]
c. Technical Colleges	[ ]	[ ]	[ ]	[ ]	[ ]
d. Science and Technical Colleges	[ ]	[ ]	[ ]	[ ]	[ ]
e. Senior Secondary	[ ]	[ ]	[ ]	[ ]	[ ]
f. Junior Secondary	[ ]	[ ]	[ ]	[ ]	[ ]
g. Technical Teachers' Colleges	[ ]	[ ]	[ ]	[ ]	[ ]
h. Polytechnic/Colleges of Technology	[ ]	[ ]	[ ]	[ ]	[ ]
i. University Education	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, please give details

Q2. *Please indicate, to which extent you agree/disagree on which of the following methods/modes will prove most effective for training construction related* ***craftsmen*** *for the Nigerian construction industry.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. Informal (local) apprenticeship	[ ]	[ ]	[ ]	[ ]	[ ]
b. Formal apprenticeship (classroom instruction combined with practical site work).	[ ]	[ ]	[ ]	[ ]	[ ]
c. Science and Technical colleges	[ ]	[ ]	[ ]	[ ]	[ ]
d. Vocational/innovation enterprise Institute	[ ]	[ ]	[ ]	[ ]	[ ]
e. Junior Secondary School	[ ]	[ ]	[ ]	[ ]	[ ]
f. Senior Secondary School	[ ]	[ ]	[ ]	[ ]	[ ]
g. Technical Teachers College	[ ]	[ ]	[ ]	[ ]	[ ]
h. Polytechnic/Colleges of Technology	[ ]	[ ]	[ ]	[ ]	[ ]
i. University Education	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, please give details:

Please give further relevant clarification/explanation on how the preferred method could be successfully implemented:

Q3. *Please indicate to which level you agree/disagree, the extent to which the factors listed below militate against the effectiveness of Technical/Vocational Education and Training (TVET) in producing the needed competent skilled* ***craft people*** *for construction related trades in Nigeria.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. poor funding	[ ]	[ ]	[ ]	[ ]	[ ]
b. absence of workable/effective training framework	[ ]	[ ]	[ ]	[ ]	[ ]
c. absence of training facilities	[ ]	[ ]	[ ]	[ ]	[ ]
d. obsolescence of training facilities	[ ]	[ ]	[ ]	[ ]	[ ]
e. defective training/instructional methods	[ ]	[ ]	[ ]	[ ]	[ ]
f. non-participation of construction industry's private sector	[ ]	[ ]	[ ]	[ ]	[ ]
g. government's lack of commitment to TVET	[ ]	[ ]	[ ]	[ ]	[ ]
h. absence of practical instructions in TVET curriculum	[ ]	[ ]	[ ]	[ ]	[ ]
i. abandonment/truncation of TVET policies	[ ]	[ ]	[ ]	[ ]	[ ]
j. shortage of qualified TVET teachers	[ ]	[ ]	[ ]	[ ]	[ ]
k. unwillingness of trainees to acquire in-depth vocational knowledge	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, please give detailed explanation:

Q4. *How will you rate the effects of skills training problems (highlighted in Q3 above) on the supply of needed competent and confident skilled* ***craftsmen*** *to the Nigerian construction industry?*

	Very Serious (5)	Somehow Serious (4)	Moderately Serious (3)	Less Serious (2)	No Effect (1)
a. with regards to the quality/standard of skilled labour supplied	[ ]	[ ]	[ ]	[ ]	[ ]
b. with regards to the quantity/number					

of skilled labour supplied	[ ]	[ ]	[ ]	[ ]	[ ]

Please give any other relevant clarification:

Q5. *How will you rate the severity of Nigerian Skills Training problems (listed in Q3) on the quality or standard of work of each of the construction Trades listed below?*

	Very Severe (5)	Somehow Severe (4)	Moderately Severe (3)	Less Severe (2)	Not severe (1)
a. Bricklayers, Blocklayers and Stonemasons	[ ]	[ ]	[ ]	[ ]	[ ]
b. Concretors	[ ]	[ ]	[ ]	[ ]	[ ]
c. Carpenters and Joiners	[ ]	[ ]	[ ]	[ ]	[ ]
d. Painters and Decorators	[ ]	[ ]	[ ]	[ ]	[ ]
e. Wood workers/Machinists	[ ]	[ ]	[ ]	[ ]	[ ]
f. Plumbers, Pipe-layers, Pipefitters and Steamfitters	[ ]	[ ]	[ ]	[ ]	[ ]
g. Plasterers and Stucco Masons	[ ]	[ ]	[ ]	[ ]	[ ]
h. Sheet Metal Workers	[ ]	[ ]	[ ]	[ ]	[ ]
i. Structural, Reinforcing work/Welders	[ ]	[ ]	[ ]	[ ]	[ ]
j. Electricians	[ ]	[ ]	[ ]	[ ]	[ ]
k. Glazier	[ ]	[ ]	[ ]	[ ]	[ ]
l. Roofers	[ ]	[ ]	[ ]	[ ]	[ ]

m. Terrazzo skilled workers	[ ]	[ ]	[ ]	[ ]	[ ]
n. Construction Labourers	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, (please specify)

Please give further clarifications on your opinion on the above:

Q6. *Listed below are various ways the organized private sector could positively impact/support or promote* ***craftsmen's*** *training in the Nigerian construction industry. Please indicate to which level you agree/disagree on each of the points.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. establish training schools for skills training/ development	[ ]	[ ]	[ ]	[ ]	[ ]
b. sponsor craftsmen for further skills training	[ ]	[ ]	[ ]	[ ]	[ ]
c. sponsor tradesmen for professional development/conferences	[ ]	[ ]	[ ]	[ ]	[ ]
d. contribute fixed percentage of profit after tax towards vocational education	[ ]	[ ]	[ ]	[ ]	[ ]
e. provide programmed instruction for craftsmen	[ ]	[ ]	[ ]	[ ]	[ ]
f. organize regular in-house improvement courses/workshops for craftsmen	[ ]	[ ]	[ ]	[ ]	[ ]
g. recruit unskilled youth for training	[ ]	[ ]	[ ]	[ ]	[ ]
h. recruit willing un-skilled adults for training	[ ]	[ ]	[ ]	[ ]	[ ]
i. accept vocational students/apprentices for practical work experience	[ ]	[ ]	[ ]	[ ]	[ ]
j. purchase tools and equipment for vocational institutes	[ ]	[ ]	[ ]	[ ]	[ ]
k. involve with 'trade-testing' and examination of vocational students	[ ]	[ ]	[ ]	[ ]	[ ]
l. establish private vocational training centres for the training of youths in their areas of operation.	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, (please specify)

Q7. *Please indicate, to which extent you agree/disagree on each of the following reasons why Nigerian youths are not showing interest in acquiring construction related skills.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. hazardous nature of construction site works	[ ]	[ ]	[ ]	[ ]	[ ]
b. poor rate of pay for site workers	[ ]	[ ]	[ ]	[ ]	[ ]
c. lack of recognition for Artisans	[ ]	[ ]	[ ]	[ ]	[ ]
d. lack of respect/dignity for Artisans	[ ]	[ ]	[ ]	[ ]	[ ]
e. government do not encourage skills acquisition	[ ]	[ ]	[ ]	[ ]	[ ]
f. no clear-cut career path for craftsmen	[ ]	[ ]	[ ]	[ ]	[ ]
g. the youth lack adequate guidance and counselling to take to skills acquisition	[ ]	[ ]	[ ]	[ ]	[ ]
h. there is no adequate forum for mobilising youth for skills acquisition	[ ]	[ ]	[ ]	[ ]	[ ]
i. construction site work is viewed by the youth as too difficult a task	[ ]	[ ]	[ ]	[ ]	[ ]
j. construction site work is viewed by the youth as too degrading	[ ]	[ ]	[ ]	[ ]	[ ]
k. the youth generation are lazy and hence unwilling to acquire skills	[ ]	[ ]	[ ]	[ ]	[ ]
l. too much emphasis on general/secular education	[ ]	[ ]	[ ]	[ ]	[ ]
m. it is too expensive to receive vocational training	[ ]	[ ]	[ ]	[ ]	[ ]
n. the get rich quick orientation in the nation	[ ]	[ ]	[ ]	[ ]	[ ]
o. lack of adequate provision for protection and safety of site workers	[ ]	[ ]	[ ]	[ ]	[ ]
p. lack of incentive/encouragement from political leaders	[ ]	[ ]	[ ]	[ ]	[ ]
q. absence of health and safety training from the vocational education curriculum	[ ]	[ ]	[ ]	[ ]	[ ]
r. lack of job security in the construction industry	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, (please specify)

\

Please give further clarifications on your opinion on the above:

\

Q8. *Listed below are various possible strategies or ways, by which Nigerian youth could be* ***motivated*** *to pick-up interest in skills acquisition, please indicate to which extent you agree or disagree on each of the point.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)]*

	SA (5)	A (4)	DN (3)	D (2)	SD (1)
a. make skills and vocational training free	[]	[]	[]	[]	[]
b. make craftsmen wages attractive	[]	[]	[]	[]	[]
c. make skills trainees earn while they learn	[]	[]	[]	[]	[]
d. ensure dignity of labour for craftsmen	[]	[]	[]	[]	[]
e. make general education practical/skills oriented	[]	[]	[]	[]	[]
f. accord recognition to skills/vocational education	[]	[]	[]	[]	[]
g. make skills instruction mandatory at junior secondary	[]	[]	[]	[]	[]
h. make skills instruction mandatory at senior secondary	[]	[]	[]	[]	[]
i. de-emphasize non-skilled general education	[]	[]	[]	[]	[]
j. properly fund technical/vocational education	[]	[]	[]	[]	[]
k. make career guidance and counselling mandatory at junior secondary level	[]	[]	[]	[]	[]
l. make career guidance and counselling mandatory at senior secondary level	[]	[]	[]	[]	[]

Any other, (please specify)

Please give any further clarification on your opinion on the above

Q9. *Listed below are various possible avenues or groups, through which Nigerian youth could be* ***mobilized*** *for the purpose of skills acquisition, please indicate to which extent you agree or disagree on each of the points.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA (5)	A (4)	DN (3)	D (2)	SD (1)
a. Youth associations and clubs	[]	[]	[]	[]	[]
b. Market Associations and clubs	[]	[]	[]	[]	[]
c. Parents/families/homes	[]	[]	[]	[]	[]
d. Parents/Teachers' associations in schools	[]	[]	[]	[]	[]
e . Religious organizations and groups	[]	[]	[]	[]	[]
f. Social groups/clubs	[]	[]	[]	[]	[]
g. Junior secondary schools	[]	[]	[]	[]	[]
h. Senior Secondary schools	[]	[]	[]	[]	[]

i. Trade Unions	[]	[]	[]	[]	[]
j. Professional bodies	[]	[]	[]	[]	[]
k. Local government councils	[]	[]	[]	[]	[]

Any other, (please specify)

Please indicate your opinion on the strategy to be adopted in mobilizing the youth through any of the avenues/groups:

Q10. *Listed below are possible strategies that could be effective in addressing the Nigerian construction industry skilled labour shortages issue. Please indicate to which extent you agree or disagree on each of the points.* ***[Note:*** *SA - Strongly Agreed (5), A-Agreed (4), DN- Don't know (3), D-Disagreed (2), and SD-Strongly Disagreed (1)].*

	SA *(5)*	***A*** *(4)*	***DN*** *(3)*	***D*** *(2)*	***SD*** *(1)*
a. adopt multi-skilling method for new skills/vocational trainees	[]	[]	[]	[]	[]
b. mobilize unskilled youth for skills training	[]	[]	[]	[]	[]
c. get construction companies involved in skills training	[]	[]	[]	[]	[]
d. re-introduce the apprenticeship scheme and make it effective	[]	[]	[]	[]	[]
e. make secondary education skill-based	[]	[]	[]	[]	[]
f. group sub-contractors for purpose of training apprentices	[]	[]	[]	[]	[]
g. re-train the existing craftsmen	[]	[]	[]	[]	[]
h. establish special apprenticeship training centres	[]	[]	[]	[]	[]

Any other, (please specify)

Please indicate your opinion on the effective method(s) for implementing the indicated or preferred choice(s).

Q11. *Listed below are various possible agencies that could assist with the Quality assurance and benchmarking of construction industry skills/craftsmen training standards. Please indicate your level of agreement.*

	SA (5)	A (4)	DN (3)	D (2)	SD (1)
a. organized construction industry sector	[ ]	[ ]	[ ]	[ ]	[ ]
b. construction labour unions	[ ]	[ ]	[ ]	[ ]	[ ]
c. Federal government labour ministry	[ ]	[ ]	[ ]	[ ]	[ ]
d. State government education ministry	[ ]	[ ]	[ ]	[ ]	[ ]
e. Local government education board	[ ]	[ ]	[ ]	[ ]	[ ]
f. National board for technical education	[ ]	[ ]	[ ]	[ ]	[ ]
g. main contractors/construction companies	[ ]	[ ]	[ ]	[ ]	[ ]
h. construction industry professional bodies	[ ]	[ ]	[ ]	[ ]	[ ]
i. vocational training institutes	[ ]	[ ]	[ ]	[ ]	[ ]
j. Sub contractors firms	[ ]	[ ]	[ ]	[ ]	[ ]
k. apprenticeship/skills training board	[ ]	[ ]	[ ]	[ ]	[ ]
l. construction industry training board	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, (please specify)

Please indicate your opinion on the effective method(s) for implementing the indicated or preferred choice(s).

Q12. *Please give your opinion on which of the following agencies should take charge of the examination and certification of graduating construction industry craftsmen.*

	SA (5)	*A* (4)	*DN* (3)	*D* (2)	*SD* (1)
a. vocational education examination board (to be established)	[ ]	[ ]	[ ]	[ ]	[ ]
b. apprenticeship scheme examination board (to be established)	[ ]	[ ]	[ ]	[ ]	[ ]
c. National business and technical examination board (NABTEB)	[ ]	[ ]	[ ]	[ ]	[ ]
d. West African Examination Council (WAEC)	[ ]	[ ]	[ ]	[ ]	[ ]
e. local education board	[ ]	[ ]	[ ]	[ ]	[ ]
f. state education board	[ ]	[ ]	[ ]	[ ]	[ ]
g. federal education ministry	[ ]	[ ]	[ ]	[ ]	[ ]
h. state government labour ministry	[ ]	[ ]	[ ]	[ ]	[ ]
i. federal government labour ministry	[ ]	[ ]	[ ]	[ ]	[ ]
j. vocational training institutes	[ ]	[ ]	[ ]	[ ]	[ ]

Any other, (please specify)

Please indicate your opinion on the effective method(s) for implementing the indicated or preferred choice(s).

13. Would you like to be contacted for further relevant enquiries on this research?

i. Yes [ ]

ii. No [ ]

If you answer yes to (13) above, please indicate your contact details

Name:.....Tel No.....

E-mail:.....

Company's Name (if applicable).....

Position/Post.....

Postal Address:.....

Thank you very much for the time and effort in completing the questionnaire. (Kindly return this questionnaire within two weeks).

Ezekiel M. Awe

Researcher

APPENDIX 'B'

Research Qualitative Interview Guide

Q1. What, in your candid opinion are reasons why Nigerian youth seems not to be showing interest in acquiring construction related skills?

Q2. What strategies do you think could be adopted in motivating and mobilizing these youths?

Q3. From your experience and knowledge of the Nigerian Construction Industry, what are the common methods of skills training in Nigerian construction sector? :

- In the past years or decades
- At the present time

Q3a. What strategies do you think could be adopted to make skills training and development effective for craftsmen in the nation's construction sector?

Q4. What, in your opinion are the problems facing skills training and development in the Nigerian construction sector?

Q5. Apart from the National policy on Education, (which seems somewhat general) do you know of any other existing training and development of construction related skilled operative in Nigerian construction sector?

Q6. In formulating a framework for the training and development of skilled operatives for the construction sector, what factors do you think should be put into consideration?

- Designing the training and development framework in the context of the present Vocational Education and Training Structure.
- Designing the framework to be independent of the present system and the construction industry taking the lead in presenting it for government ratification, approval and adoption. - (For example, establishing Construction Colleges under the supervision of Construction Industry training Board as in some western countries).

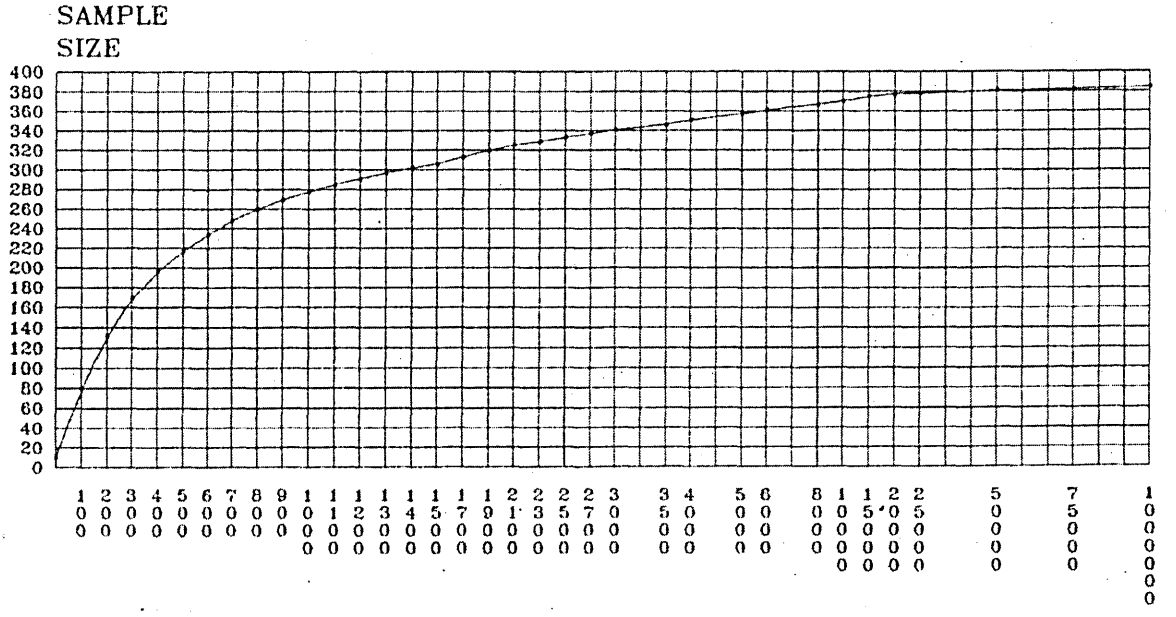
Q7. What roles would you recommend that the Construction industry organized private sector and the professional Bodies play in the training and development (Framework) for skills operatives in the sector? (eg. funding, staffing, quality control, examination, qualification, certification etc).

Q8. In your opinion, would you say that non participation or non-commitment of the construction industry private sector is a relevant problem or factor affecting training and development of skills in the construction industry in Nigeria?

Q9. Apart from construction operatives' initial training, what strategies would you recommend for ensuring the continual development of standard of output of skilled operatives in the nation's construction sector?

Appendix 'C'

SAMPLE SIZE VS. TOTAL POPULATION



Assumes Standard Error = .05

Table used for determining quantitative survey sample
Source: Krejcie and Morgan (1970).