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FEMALE PARTICIPATION IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS IN NORTHERN GHANA: PROSPECTS AND CHALLENGES

BY

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DECLARATION

I, Jonas Kpenubang Nemboni, author of this thesis hereby declare that this project work titled: "FEMALE PARTICIPATION IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS IN NORTHERN GHANA: PROSPECTS AND CHALLENGES", is the result of my independent work carried out for the Award of Master of Philosophy (M.Phil) Degree in Development Management at the Faculty of Planning and Land Management, University for Development Studies, Tamale. It was carried out under the supervision of Professor Stephen B. Kendie. I affirm that this thesis work has never been presented or published in whole or part for any purpose elsewhere. All references that have been consulted in the processes leading to this final outcome have been fully acknowledged and dully cited. I, however, take responsibility for any shortcomings or errors that may be found in this work.

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DEDICATION

This work is dedicated to my beloved children and wife: Michaela M. Nembonyelle, Cassandra M. Nembonyelle, Shadrach D. Nembonyelle, Maxine I. Nembonyelle, and Madam Simplicia Gyaang Nembonyelle respectively.

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GLOSSARY

BECE: Basic Education Certificate Examination

CSM: Cerebra-Spinal Meningitis

CSSPS: Computerized Schools' Selection and Placement System

CTE: Career and Technical Education

COTVET: Council of Technical and Vocational Education and Training

DFID: The Department for International Development

FCUBE: Free Compulsory Universal Basic Education

GES: Ghana Education Service

GHDR: Ghana Human Development Report

GIST: Girls in Science and Technology

GLSS: Ghana Living Standards Survey

GNQA: Ghana National Qualifications Authority

GPRS: Growth and Poverty Reduction Strategy

GRATIS: Ghana Regional Appropriate Technology Industrial Service

GSS: Ghana Statistical Service

HND: Higher National Diploma

ILO: International Labour Organization

ITAB: Industry Training Advisory Board

ITACs: Industry Training Advisory Committees

ITTU: Intermediate Technology Transfer Unit

JHS: Junior High School

JSS: Junior Secondary School

NABPTEX: National Board for Professional and Technical Examinations

NCCTVT: National Coordinating Committee for Technology and Vocational Training

NACTVET: National Commission for Technical, Vocational Education and Training

NDC: National Democratic Congress

NDF: Northern Development Fund

NGO: Non-Government Organization

NPP: New Patriotic Party

NVTI: National Vocational Training Institute

PLA:	Platform for Action
PNDC:	Provisional National Defense Council
PTA:	Parents-Teachers Association
SHS:	Senior High School
SPSS:	Statistical Package for Social Sciences
SSS:	Senior Secondary School
SSSCE:	Senior Secondary School Certification Examination
TEU:	Technical Examination Unit
TI:	Technical Institute
TQAB:	Training Quality Assurance Board
TVET:	Technical and Vocational Education and Training
TV:	Television
UNESCO:	United Nations Educational Scientific and Cultural Organization
UNEVOC:	United Nations Educational and Vocational
UK:	United Kingdom
UNICEF:	United Nations International Children's Emergency Fund
UNO:	United Nations Organization
USA:	United States of America
VET:	Vocational Education and Training
VOTEC:	Vocational and Technical
WASSCE:	West Africa Senior School Certificate Examination
WID:	Women in Development

ABSTRACT

The research focuses on female participation in technical and vocational education a training with particular emphasis on skill training opportunities for females in Northe Ghana. In Ghana, labour markets have become so competitive that females need to be assist to enter such markets. Expanding skill-training opportunities for females in traini institutions could meet this demand. It is for this reason that this thesis sought to ident gender disparities in technical and vocational education and training institutions favouri males against females who have low participation. Thus, the central questions this thesis tri to answer were: What is the state of female enrolment in technical and vocational institutio in Northern Ghana? What factors influence the decision of parents to send their girls technical and vocational schools? And what challenges confront technical and vocatio institutions in enrolling females? Interviews and questionnaires were used to collect data t were analyzed by the use of SPSS and qualitatively as well within the framework of hum capital theory. By examining and finding answers to these questions raised above, it w revealed that even though females have shown interest in technical and vocational educati and training, their enrolment rates were low as compared to their male counterpa particularly in male-dominated programmes. In short, gender balance was lacking in techni and vocational education and training and most institutions were internally inefficient, w endogenous factors forcing female trainees out of the training programmes. It was al evidenced that immediate employment opportunities were the main driving force influenci parents and guardians to send their females' wards to technical and vocational education a training institutions.

The study concludes that investigation on the prospects and challenges of female participati in technical and vocational education and training institutions in Northern Ghana could he in providing information for planning process. Clearly, the situation is quite discouraging w most institutions being male-dominated. In the light of this, it recommends that t institutions involved need to consider broadening their range of courses. For, there a marketable courses available that would increase the participation of girls in technical a vocational education programmes for the individual and national development.

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Based on the common assumption that there was a strong linear relationship between education and economic/social development, many countries gave a high priority to education in the 1960s and early 1970s. The original concern with shortages of educated manpower per se rapidly shifted to one targeted on scientific and technical personnel since it was felt that the lack of such personnel could seriously hamper the country's industrialization and economic development. The assessment of how many people, and who ought to be trained in what area was largely based on labour market analyses and manpower projections. These analyses, which pointed to the serious shortages of high level specialists, indicated as well that the lack of middle level manpower could constitute another bottleneck for development, possibly compromising the effectiveness of staff at professional level (UNESCO, 1983 and edited by Atchoarena, 1993; Atchoarena and Delluc, 2001).

Thus, technical and vocational courses have been created in many countries over the world in recent times including those in Africa. Between 1970 and 1980, enrolments in technical/vocational education increased from 15.7 to 24.3 million, at an annual growth rate of 4.5% --higher than that of general secondary education which during the period equalled 3.9%. As a consequence, the share of vocational and technical schools in the enrolments of secondary education increased from 13.9% in 1970 to 14.6% in 1980 (UNESCO, 1983). Such development took place largely with the support of aid agencies. According to Orivel and Sergent (1990) cited in Atchoarena (1993), nearly 50% of external aid is spent on secondary, technical and vocational education.

The term "Technical and Vocational Education and Training" is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Policy on TVET in Ghana, November 1990; UNESCO, 1999). However, when used separately, each element of this composite term takes on a restricted meaning. For instance, Policy on TVET in Ghana, November 1990 explained Technical Education to mean the type of education designed at the upper, secondary and tertiary

(particularly at the college and polytechnic) levels to prepare middle-level personnel (technicians, middle management, etc.) and at university level to prepare engineers and technologists for higher management positions. Technical education includes general education, theoretical, scientific and technical studies and related skills training. The components of technical education may vary considerably depending on the type of personnel to be prepared and educated. Vocational education, on the other hand, according to the policy is that type of education designed to prepare skilled personnel at lower levels of qualification for one or group of occupations, trades or jobs. This includes general education, practical training for the development of skills required by chosen occupation and related theory. The proportion of these components may vary considerably but the emphasis is usually on practical training (ibid, 1990).

In Africa, the majority of the population (with women comprising 52%) lives and works in the rural and urban informal sector (Kelly, 1994; cited in Ngware, 2002). It has been observed that ideological beliefs about gender differences have produced substantial constraints and biases affecting decision regarding women's productivity and investments in their education and welfare (Stromquist, 1998). In Africa, women usually provide unpaid or underpaid family labour in the familial mode of production. Stromquist has observed that an increasing number of women are becoming heads of households in Africa. It is estimated that one-third of the households in Africa are headed by women. This assessment is not farfetched from Northern Ghana. For instance, in the Upper East Region, Awumbila (1996) cited in Tsikata (2001) has observed that with increasing social change, several changes have occurred in the structure of the household, with women taking on a large part of the household responsibilities for the daily needs of households. If unskilled, such women heads of households represent a vulnerable group. This calls for programmes to sensitize women and girls in Africa on the need for training in work skills necessary in life.

Also, a study of factors that account for gender differences in access to post-secondary education in Uganda found out that the school system and household and labour market factors interact in a way that discourages girls' participation in training institutions (Kasente, 1995). Kasente's findings in Uganda further show that females want to be trained; however, there are barriers that discourage them from going for training. These among other reasons call for programmes to sensitize women and girls in Africa on the

need for training in work skills necessary in life. Ngware (2002: 22) has buttressed the point when he asserted that "Session Paper No. 2 of 1996 in Kenya recommended that girls should be encouraged and assisted to undertake training in non-traditional female occupations. The Session Paper partly based its recommendation on the assumption that males and females are equally likely to go for technical training."

In the words of Kerre (1996), the purpose and objectives advanced for technical and vocational education in a given country delineate the scope within which TVET is to be developed and implemented. In this regard, Ghana have stated in one form or another the general objective of technical and vocational education as follows: To provide, alongside general education, knowledge and skills in technical and vocational fields in order to meet national manpower requirements in agriculture, business, industry and other technical services.

In the pre-colonial times technical and vocational education was deeply rooted in the Ghanaian society as it was in most African countries. This system of education also known as Traditional Education was acquired through participation, imitation and observation of productive activities. Training was given to an individual according to the needs of a particular society and the demand of its environment. For example, in a community of blacksmiths or sculptures, the training was directed towards the skills which sharpens the sense of the youth so that he/she develops his/her responses to the stimuli of the environment (Annoh, 1992). This implies that traditional education has had or still has a positive impact of vocational and technical education in Ghana. People make their livelihood through skills acquired from this system of education. Today, a large number of Ghanaian populations who do not benefit directly from formal education still make good use of traditional education.

In Ghana, however, until the Second World War, little or no prominence was afforded TVET although some efforts were made by some missionaries and the colonial governments to include this form of education in the school curriculum in the 16th century (Duodu, 2000). For instance, the wives of merchants and missionaries provided some form of formal education for girls in schools like Wesley Girls' School and Training Homes in Cape Coast and Akropong (Aburi Girls' Secondary School) respectively (Bartels, 1965). Subjects taught included cooking, mending, housekeeping, reading and writing. The

purpose was to train girls as house-helpers to the merchants and missionaries and also to be good wives to the merchants and catechists. It was in line with this that after the return of the soldiers from the war, there was the need to equip them with skills to enable them to become employable. The "soldier returnees" were therefore put into some established institutions in which crafts of all sorts were taught. These schools were given names such as "Trade Schools", "Borstal Institutes", etc. which gave the impression that they were schools set aside for the academically weak, unfit or dropouts. This has rather unfortunately affected the general attitude of Ghanaians towards TVET (Ayim, 1998).

So these institutions in Ghana have not received much attention for the purpose in which they were established right from the pre-colonial days. This is not far from the point saying that they are limited in number and more importantly ill-resourced; particularly government or state owned ones, to attract young men and women in the country. For instance, there were only 23 public technical institutions in Ghana as at 1993. This number has, however, increased to 25 (Ghana Statistical Service, 2005: 180). In addition to the 25 technical institutes managed by the Ghana Education Service (GES), the National Vocational Training Institute (NVTI) and the Ministry of Employment and Manpower manage 37 vocational centers, which teach mechanical, and electrical engineering skills, as well as clerical and other vocational trades, such as dressmaking, cookery, leather work, and other artisan skills. Added to these are private institutions and the vibrant traditional apprenticeship system. Other centres providing VOTEC education are Non-Governmental Organizations, which manage about 70 Community Based Vocational Centres, and the Ghana Regional Appropriate Technology Industrial Service (GRATIS) which has seven Intermediate Technology Transfer Units (ITTU) (Ghana Statistical Service, 2005: 236-237).

In reality these institutions are very appalling in Northern Ghana. For instance, apart from the few Secondary Technical Schools that were established in the 1990s to run technical courses alongside general education and some private vocational and technical schools, there are only five out of the 25, and eight out of the 37 recognized Public Technical Institutes (TI) and National Vocational Training Institutes (NVTI) respectively, despite the creation of one ITTU centre in each of the regional capitals. The Northern Region has only two technical institutes and three NVTI centres. Upper East Region had two technical

institutes and one NVTI centre, while the Upper West Region has one technical institute with four NVTI centres (GES, 2001 and NVTI, 2001 Reports; cited in GSS, 2005).

Over the years, women traditionally were seen not to be playing any role in development. They were considered to be homemakers who engaged in activities such as cooking, hairdressing, weaving, needlework, pottery and processing of food crops such as extracting shea butter, palm kernel oil and gari (Adu, 1999). These occupational areas have led female children to tune their career aspirations, choices and expectations, putting aside most of their interests and abilities. However, men and male children tend to undertake occupations covering broad areas including masonry, carpentry and joinery, block laying and concreting, and shoe-making which were believed to be better paying than the "traditional" female occupations. During World War II, women were employed for salaries when they were accommodated to sew clothes and play a nursing role for the soldiers at war, by giving treatment to those who got injured during the war. These marked the turning point for women in vocations which attract salaries the world over (Feldkamp, 1975).

Unfortunately, technical and vocational training institutions in Ghana did not place much emphasis on instructions in vocational and technical courses so as to create a pool of individuals, particularly females with skills relevant for blue-colour jobs in the northern part of the country as compared to their counterparts in the south during the period. Writing on the history of education in northern Ghana, Bening (1990: 150-155) indicated that the beginning of technical education may be traced to the efforts of the White Fathers who, out of the necessity to avoid expulsion from the Gold Coast, started to teach adults carpentry at Navrongo in 1907. Accordingly, it was not until 1922 that the Yendi Junior Trade School, the first of its kind was opened by the colonial government and later moved to Tamale. This was done perhaps in response to the chiefs' request that "the inhabitants of the Northern Territories should also be given the opportunity to acquire the practical and technical skills available to the people of the south". The school curriculum included masonry, carpentry, metalwork, and agriculture for boys. Technical and vocational education never included girls in this part of the country before independence in 1957. For instance, one condition was that until a trade school had been established for each division, "boys from the royal family will, on the nomination of the Oman, have first

claim to 75 percent of the vacancies, the remainder being filled by boys speaking the local language" (Bening, 1990: 153 – 154).

Also, in a study on women and vocational training in Ghana, Kane (1991) observed that sex-role and attitudinal stereotyping as well as institutional and employment occupations have greatly militated against women entering the male-dominated occupations. This has contributed to gender disparities in many parts of the country not excluding Northern Ghana.

Gender disparities are prevalent in Ghana including the three northern regions. Although Ghana has made some progress towards achieving development in some areas, particularly in the last few decades, gender inequalities continue to limit women's capacities and constrain their ability to participate fully in and contribute to the economy (Tsikata, 2001: 33). In Ghana, labour surveys have shown that women constitute over half of the labour force and predominate in the rural areas (Ghana Statistical Service, 2007). Accordingly, the category of employment opportunities available is skewed in favour of the men. And because women lack education, training and skills, the majority of them in Ghana tend not to be able to improve their opportunities and, therefore, they remain in low skilled, low status and low paid jobs including agriculture and trade (Awumbila 2001; Lloyd and Gage-Brandon 1994; Manuh 1993). For example, whereas 27.4% of working females are engaged in trading, only 7.4% of males are traders (Ghana Living Standards Survey, 2007).

King and Hill (1993) were not out of context when they indicated that in every region of the world girls are to be found predominantly in the general academic streams of secondary school, with numbers enrolled on vocational and technical courses being very low compared to boys. For example, in Ghana only 9.7% of total enrolments in government vocational and technical training institutions were females in 1992 (Boeh-Ocansey, 1993). In a similar development, enrolment statistics of vocational and technical training from 2002 – 2004 in Ghana indicated that 8,361 people were trained. Of these 6,159 (74%) were males while 2,202 (26%) were females. In 2006, there were 7,211 trainees consisting of 5,530 (77%) males and 1,685 (23%) females (Ghana Human Development Report, 2007:32).

The situation is even appalling in the three northern regions. For instance, enrolment in technical and vocational education remains very low for both males (3.3%) and females (2.2%) in Northern region. In the Upper East Region, the proportion with technical/vocational education is 1.7% males against 1.0% females. However, in the Upper West Region data on current enrolment shows that both sexes (boys and girls) in technical/vocational schools attendance are same and stood at 5.6% each sex (Ghana Statistical Service, 2005). Some reasons alluded to these developments are that; many of such schools require much investment in equipment and infrastructure, the low girl-child education, especially after the primary school level is not merely poverty but the extreme poverty of parents and last but not the least the fact that not much education has been given to change the age-old perception that the girl-child's education is a waste of parental resources and will only benefit the man she marries in the future (ibid, 2005). In the contribution of Coombe (1988), such low enrolment may be because fewer girls come forward for such courses (fearful of harassment and hostility from boys) or because provision is less generous than for boys.

In Ghana, there is no gender distinction in the provision of education. This explains why the 1961 Five-Year Accelerated Development Plan established equal opportunities for both men and women in education. This is because "education" was conceived as the keystone of a people's life and happiness, and should be provided for every child of school-going age (Graham, 1976). Guided by this view, the Ministry of Education and the Ghana Education Service(GES) as in the on–going education reforms have revised the curriculum in such a way that provision was made for both boys and girls to study technical and vocational subjects at the various levels beginning from the Junior Secondary School(JSS)stage. For example, both the 1972/4 and 1987 educational reforms have brought about the introduction of Technical Drawing and Technical Skills into the basic educational programme for all children. The same policy on vocational and technical education also stresses a diversification of women's training. In the Secondary Technical Schools; options are also available for the study of technical and vocational subjects by boys and girls alike. Under the Educational Reform Programme, the number of Senior Secondary/Technical Schools has been increased from 20 to 120 (McWilliams and Kwamena-Poh, 1995).

In Ghana, it is estimated that 41% of the population is below 20 years of age (Ghana Statistical Service, 2002). The government of Ghana, through the Growth and Poverty Reduction Strategy (GPRS II) (2006-2009) document of 2005, observed that there existed a disparity between demand and supply in the labour market. It continues to aver that the majority of the youth lack technical and vocational skills training that are required in the labour market. This places those without work skills particularly in Northern Ghana at a grave disadvantage.

In Ghana, the fast growing sector which is self-employment owes its stock of skills to the formal technical and vocational training institutions (Technical Institutes, Polytechnics, National Vocational Training Institutes (NVTI) and Intermediate Technology Transfer Units (ITTU)). However, informal training in the self-employment sector takes place on a small-scale in urban centres. In both formal and informal training, work skills, self-employment and entrepreneurial skills are emphasized. It has been observed that access to and participation of girls in both formal and informal vocational and technical training courses is only 23% (Ghana Human Development Report, 2007:32).

1.2 Statement of the Problem

A country's human resources are its most valuable assets. In recognition of this fact, the government of Ghana is working hard to ensure that all its citizens are prepared with the high level of knowledge and skill needed to meet the country's requirements for trained professionals in every field. Formal education at all levels is widely acknowledged to be the most effective way of developing Ghana's human resources and meeting this need for trained professionals (Canadian Vocational Training Sponsorship's Newsletter –The Vocational News, 2003).

In a competitive environment, however, disadvantaged groups or the vulnerable in a society will hardly be in a position to take advantage that come with liberalization and a fast growing informal sector. Training potentials and opportunities for women and girls in technical and vocational education and training institutions in Northern Ghana need to be explored with a view to expanding them. This is because in both absolute and relative terms in recent reports, females' enrolment has always lagged behind that of males at all levels of the educational ladder. For example, in an economic survey of 2001 – 2005 that was conducted by the Ghana Statistical Service (2007: 111), it was revealed that

enrolment by sex in public technical and vocational institutions pegged females with the lowest representation, compared with their male counterparts within the five year period (2000 - 2005).

It is in this light that there are a lot of questions or growing general perceptions that, women participation in technical and vocational education and training (particularly in male-dominated areas) is low, notwithstanding governments' efforts put in place to give equal opportunities to both males and females. This development therefore called for research on skills' training needs for girls and women in developing countries, like Ghana, in order to provide reliable data for policy formulation and implementation. Vocational and technical education and training of girls in sub-Saharan Africa offer the society an opportunity to give equal distribution of resources, reduce absolute poverty and develop human resources (Ngware, 2002).

The problem that engages the attention of this research is the issue of low female participation in technical and vocational education and training institutions in Ghana. In other words, questions have been, and are still raised as to what prospects and challenges (factors) influence gender disparities in technical and vocational education and training. In this problem, it is assumed that if the society was unbiased, both males and females would equally go for training.

1.3 Research Questions:

1.3.1 Main Question:

What are the prospects and challenges of female participation in technical and vocational education and training?

1.3.2 Sub-Questions:

- What is the current state of female enrolment in technical and vocational institutions in Northern Ghana?
- What factors influence the decision of parents to send their female wards to technical and vocational schools?
- What are the prospects of technical and vocational education and training for females.

- What challenges confront technical and vocational education and training institutions in enrolling girls?
- Are there steps towards increasing female enrolment rates in the face of the challenges?

1.4 Research Objectives

1.4.1 General Objective

The main objective of the study is to examine the prospects and challenges of female participation in technical and vocational education and training?

1.4.2 Sub-Objectives

Specifically, the study sought to:

- Find out the state of female enrolment in technical and vocational institutions in Northern Ghana.
- Ascertain the factors that influence the decision of parents to send their female wards to technical and vocational schools.
- Identify the prospects of technical and vocational education and training for females.
- Find out the challenges that confront technical and vocational institutions in enrolling girls.
- Identify steps that have been taken to increase female enrolment rates in the face of the challenges?
- Make recommendations to the Technical and Vocational Education Division of Ghana Education Service (GES) and TVET Institutions as well as other stakeholders to work toward women's participation in technical and vocational education.

1.5 Justification of the Study:

Over the years, a lot of researches and efforts were made to gather information on the quality of life and productive capacity of women around the globe. But research works on issues related to women's participation in technical/vocational education are woefully inadequate, particularly in Northern Ghana. It is upon the basis of this that the present study is aimed at providing insight and other useful information in identification and clarification of current issues of women in technical and vocational education. The main

purpose of this study is to identify the prospects and challenges of female participation in technical and vocational education and training institutions. It would also to ascertain whether there are gender disparities in these institutions. In this study, gender disparity is operationally defined as any difference between males and females that occurred as trainees passed through technical and vocational courses. The findings would ultimately be of help to researchers, non-governmental organizations as well as other agencies including educational designing, developing and implementing training programmes to make them more gender sensitive. The study would also provide data to all and sundry not only in Northern Ghana, but the country as a whole to build awareness –creating programmes for women, parents, teachers' career counseling, employers and the society in general. The awareness would be an available option in more profitable fields such as male-dominated courses to help reduce unemployment rate among school-leavers and dropouts, especially girls.

1.6 Scope of the Study:

This research was organized into five chapters. Chapter one presents the background information about the topic, statement of the problem, research objectives and research questions. The justification of the study was also highlighted as a sub-component in this chapter. The second chapter deals with the review of related literature. That is, materials from early research work having bearing on this project were used to throw more light on this write up and also used as the base upon which this work was built. Chapter three which is the methodology chapter describes the procedures followed in carrying out the study. The descriptions of the procedures are captured in details for readers in doubt to follow it and replicate the study. It has the following sub-headings: (a) brief profile of the study area (b) research approach (c) research design (d) target population (e) sample and sample procedures (f) instrumentation (g) procedures used in collecting data (h) data processing and analysis and (i) field challenges. Chapter four presents the results or finings of the study. The results chapter has indicated the findings from the analysis of the preliminary and main data. This has been done in two main parts: the results section and the discussion section. Following on from the contextual considerations, chapter five considered the main findings of the research effort and contrasted it with the presumption adopted. This chapter brings the write up to an end with a summary of the key findings, a conclusion and recommendation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Female participation in technical and vocational education all over the world is one of the important factors which affect the development of middle-level manpower of every country. Governments pass laws mostly to regulate the operations of technical and vocational training institutions to give it a national identity and further provide access to general education to every citizen of the country.

The issue of access to and participation in technical and vocational education by women determines in considerable part the enrolment and performance in technical and vocational training institutions. Access is a matter of more than the allocation or availability of particular technical and vocational institutions and apprentice centres. Access depends upon standards of admission, standards of expected performance, individual motivation for vocational and technical education, and the cost of enrolment to the student (Perkins, 1972).

Besides, women's access to and participation in technical and vocational education is very complex because it is usually an inter-play of market demand, students' choice of programme, institutional requirements and finally government policies on technical and vocational education including its position on funding. However, Goedegebuure et al (1994) as cited in Owusu-Agyeman (2006: 11) indicates that despite these differences, "access-policies as they appear in many national technical and vocational education policy-statements are based on the principle of general access. Other policies include equal distribution of educational opportunities with particular emphasis on social class, gender and ethnic minorities in most developed countries".

In this regard, this chapter is essentially a secondary data review chapter which is aimed at putting the study in its right perspective. It would investigate the theories, various concepts and debates on females' participation in technical and vocational education and training institutions.

2.2 Structure and Organization of the Educational System of Ghana

Formal education in Ghana dates back to the mercantile and missionaries' era preceding colonization. From then a formal state education structure had been set up through series of reforms since Ghana gained independence in 1957. It is in line with this that major changes have taken place in the educational system in accordance with the objectives of the Education Reform Programme in recent years. Significant changes from 1987, have been the restructuring of pre-university education from 6+4+5+2 years (total 17 years of Primary/Secondary Education) to 3+6+3 (total 12 years of Basic Education), and currently 2+6+3 (total 11 years Basic Education), the introduction of pre-technical education or training in the junior secondary schools, and the introduction of specialized senior secondary schools to cover vocational, technical, commercial, agricultural or general studies (Abban and Quarshie, 1993). Thus, the Basic Education System shall offer all Ghana's children free compulsory education from age 4 till age 15. Pre-school education is not compulsory and normally caters for children in the age group 3-6. This starts from crèches or nurseries up to kindergartens. The JHS which is designated as Junior High School to replace the JSS will still be terminal. It will be organized to serve as a preparatory stage to Senior Secondary/Technical Schools. Second cycle education should cover 4 years. It is designated as Senior High School (SHS). It is both terminal for entry into the world of work, and preparatory stage for entry into tertiary education. Tertiary Education should cover duration of between 3 and 4 years initially, and comprise: the University, Polytechnic, Teacher Training College, Health and Agricultural Colleges and Other Post Senior High School Institutions (Sadique, 2006: 62; Sekyere, 2008: 77).

The current 2004 Educational Reform Review seeks to address the deficiencies of the 1987 Educational Reform, particularly at the basic and second cycle levels. The philosophy underlying this educational system is/was to create a well balanced individual (intellectually, spiritually, emotionally and physically) with the requisite knowledge, skills, values and aptitudes for self-actualization and for the socio-economic and political transformation of the nation. Its implementation took off on September 11, 2007 by the NPP (New Patriotic Party) Government led by President J. A. Kufuor (Ministry of Education, 2008).

It is important, however, to note that at the time of taking up this project; a new government led by President J. E. Atta Mills of the NDC (National Democratic Congress)

has decided to change the duration of Senior High School (SHS) and other Secondary Technical Institutions from four years back to three years, effective this academic year (2009/2010). Thus, the first years of the approved three-year SHS system will start the 2010/2011 academic year. Some reasons assigned for the change among other things were; lack of infrastructure to cater for the four-year system and cost on parents (Bonney, 2009: 1-3, Daily Graphic, Tuesday August 4,).

On the issue relating to the structure and content, technical and vocational education and training (TVET) in Ghana has two broad systems; Formal system which is school-based system and the Non-formal which is also known as the apprenticeship system (Bediako, 2004). The formal system which is the main concern of this study is of three levels. These are; the basic level (first cycle), the secondary level (second cycle) and the tertiary level (third level). In this system, the Technical and Vocational Education Division of the Ghana Education Service (GES) had introduced pre-technical education/training in the junior high schools, and the introduction of specialized senior high schools besides the old technical and vocational training institutions to cover vocational, technical, commercial, agricultural or general studies. Before the change of durations mentioned above, they were all to run the four year-programmes in accordance with the 2004 New Educational Reforms.

According to Ayim (1998), admission into any of the secondary education level including the public VOTEC institutions in Ghana is generally opened to candidates with a minimum qualification of the Basic Education Certificate Examination (BECE) obtained from the Junior High School (JHS). Students who complete Basic Education may enter into a Technical Institute or a Secondary School, where they take a 3-year programme. Education at the Secondary level is designed to cater for students between the ages of 14years to 18years. On completion the Senior Secondary School graduates may proceed to the University for a Degree Course or to the polytechnic for an HND programme or to any of the tertiary institutions for the preparation into an occupation of their choice (Bediako, 2004). This explains why at the Junior High School level it is compulsory for all students to study TVET related subjects, two of which are examinable. The two examinable subjects are Pre-Technical Skills and Pre-Vocational Skills. Currently, all the fields of these two subjects have been integrated to form a new entity called Basic Design and Technology with Pre-Technical and Home Economics Options to be selected from.

Selection is mostly based on the one which the individual school will register with West African Examination Council. Other acceptable requirements are: holders of WASSCE/SSSCE who express interest and the desire to follow a specific vocation. Holders of Intermediate City and Guild of London Institute Certificate or Ministry of Education Technical Examination Certificate who wish to pursue advance courses are allowed.

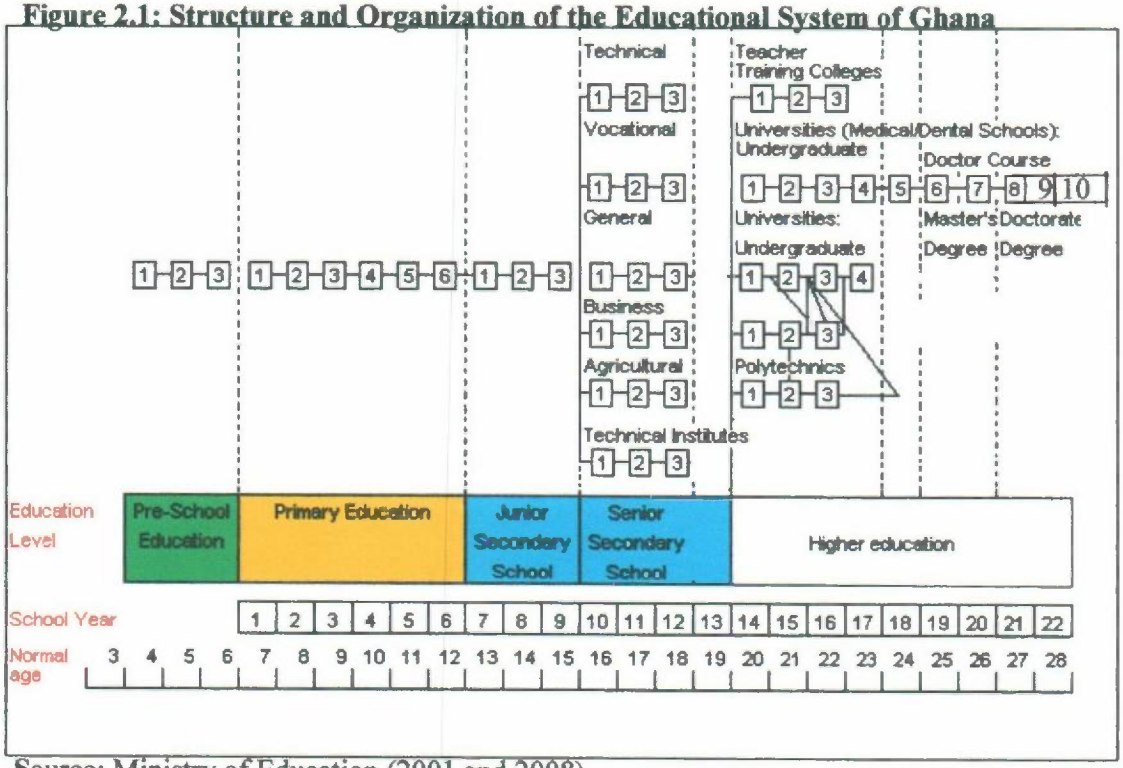
Besides, the Technical/Vocational Institute student may start with an intermediate Craft or a Technician Course. On completion of the intermediate Craft Course, the Technical Institute graduates may enter into employment for a year, after which he/she may go back to the Institute for a Technician or an Advanced Craft Course. After Craft Courses, the student may undertake a Technician Course either on full-time at a Technical Institute or part-time basis at the Polytechnic. Students who complete the Technical Course may proceed to a Polytechnic for the HND programme. The HND graduates from the Polytechnics have the opportunity to enter into any of the Universities to undertake a degree course depending on the course they took at the Polytechnic. The minimum acceptable age is 14 years (Bediako, 2004).

Still in the words of Ayim (1998), the VOTEC curriculum in Ghana spells out the duration of every programme offered. At the intermediate level, the maximum duration of training is four or three years as indicated earlier in the new reform and that of the advance course is two years. Each programme has its relevant subjects and course content. These are designated in such a way that, 60% of the course period is allocated for practical training and 40% for appropriate theories. Each academic year is made up of 40 weeks and for each week, formal teaching and learning covers 30 hours. Trainees (students) are also engaged in extra-curricular activities such as sports and games, voluntary services, club and religious activities as a means to promote the spirits of socialization. Subjects that are common across all programmes included 4 core subjects and 3 or 4 electives. The Core Science, Core Mathematics, Core English Language and Social Studies and the other related elective subjects including Technical courses (Auto Vehicle Mechanics, Welding, Woodwork, Mechanical Engineering, Technical Drawing, Craft Theory and Craft Practice, etc.) and Liberal Studies or General Business –Accounting and Secretariat Options (Bediako, 2004).

It is also important to note that the curriculum for TVET at the Craft level as well as the Advanced Craft and Technician levels includes among other things, general subjects which gives the student a sound background in general education so that those who have the ability may proceed to the highest possible level of their educational and occupational careers. With the integration of general subjects into technical and vocational curriculum, firm linkages have been established throughout the educational system. For example, in the case of technical and vocational students, provision has been made for the admission of: Artisans to Craft Courses; Craftsmen to Technician Courses; Technician to HND and other professional courses; and HND to degree courses (Bediako, 2004).

On examinations and certifications, there are various institutions that are involved in the VOTEC programmes in Ghana. Notable among them are: the Technical Examination Unit of the Ghana Education Service, the National Coordinating Committee for Technical and Vocational Training (NCCTVT) and the National Vocational Training Institute (NVTI) (Abban and Quarshie, 1993). See the educational structure of Ghana in Figure 2.1 below:

Figure 2.1: Structure and Organization of the Educational System of Ghana



Source: Ministry of Education (2001 and 2008).

2.3 Historical Overview of Technical and Vocational Education and Training in Ghana

The development of vocational and technical education and training in Ghana can be viewed from various perspectives. But for the purpose of this study, the researcher would like to consider the overview of this type of education from: the pre-colonial times (traditional education), missionaries participation, private participation, colonial government contribution, nationalist governments' contribution and the recent educational reforms.

2.3.1 Pre-Colonial Times/Traditional Education and TVET in Ghana

In the pre-colonial times VOTEC education was deeply rooted in the Ghanaian society as it was in most African countries. This system of education was known as Traditional Education (informal). It was a system of skill training where a learner acquires skills by watching, participating and imitating a master craftsman. The education was undertaken by all adults in the community, mainly by the parents of the child. Everybody thus become a teacher at one stage in the child's life and passed on to the younger generation the technical, economic and social skills required (Kaye, 1962). In the words of Annoh (1992: 5-6) this type of education was effective because it was closely related to the needs or life of the community. In other words, the nature of training given to an individual varies according to the needs of a particular society and the demand of the environment. For instance, within a farming community, a child was given the necessary orientation to make him/her a resourceful and effective member of that group of people. In a community of blacksmiths or sculptures the training was directed toward the skills which sharpens the sense of the youth so that he/she develops his/her responses to the stimuli of the environment.

From the above, it can be said that traditional education has had/or still has a positive impact of vocational and technical education and training in Ghana. People make their livelihood through skills acquired in occupations like leatherwork, metalwork, woodwork, weaving, wielding, painting and decoration, pot-making, etc. from this system of education. Today, a large number of the Ghanaian populace who do not benefit directly from formal education still makes use of traditional education to earn a living.

2.3.2 Missionaries Participation in VOTEC Education in Ghana

The need to introduce Technical and Vocational Education into the school system in Ghana has been felt throughout the periods since formal education was introduced in the 16th century as indicated earlier. During the period 1800 - 1850, some attempts were made to include agriculture and trade training into the then existing schools set up by the Christian missionaries. For example, apart from agricultural education, the Basel missionary promoted technical training. They taught some skills such as handicraft in their schools and gave their converts the actual process of building their houses, elementary lessons in carpentry, joinery, shoemaking, iron work, bookbinding, masonry, etc. Some of these trade schools were opened at Christiansburg in 1857 as well as Abokobi, Aburi and Akropong in 1860. Notwithstanding the efforts made by the Basel missionary at promoting technical education, the Catholic missionary also promoted technical education. They set up an agricultural and bookbinding centre at Saltpond, printing and carpentry centre at Cape Coast and Navrongo as well as a woodwork centre at Elmina (Bening, 1990; Annoh, 1992).

2.3.3 Private Participation in Technical or Vocational Education in Ghana

Apart from the missionaries, it was observed that (Annoh, 1992), private individuals also made efforts to establish trade schools for the Gold Coasters (Ghanaians) at the time. For instance, in 1850, a group of Europeans formed an experimental Cotton Plantation Association to encourage the Africans (Ghanaians) to grow cotton which Britain could buy for her industries. By this, the Europeans thought the Africans could learn the "habits of industry" and those of them without jobs would find some work to do. Unfortunately, all these attempts failed because Africans gave little attention and support in this regard. They rather wanted their children to acquire education that will let them pass examination set by British standards. Also, an attempt at technical education was made from 1850 – 1900. During this period, Rev. Vamp, a Wesleyan minister tried to introduce Technical Drawing, Elementary Science and Industrial subjects. In 1892, he opened a Technical Boarding School at Cape Coast to train boys to become joineries, painters and blacksmiths (ibid, 1992).

2.3.4 Colonial Governments' Contribution to VOTEC Education in Ghana

In 1909, a government technical school was opened in Accra to offer 3-year training for Standard VII leavers or higher certificates in engineering, motor mechanics, building

construction and other subjects (Bening, 1990; Annoh, 1992). The period from 1920–1942 also showed that there were four junior trade schools. By 1932, the junior trade schools were re-organized with slightly vocational bias especially in masonry, carpentry, woodwork and metalwork in four government middle boarding schools at Yendi, Kibi, Asuantsi, and Mampong-Ashanti. By this period, part-time courses in Technical Drawing, Designing, Building Construction and others were introduced—mainly for the employees of various government departments (Graham, 1976). The education system in general has undergone numerous transformations since 1957, including the setting up of various commissions to review the entire educational system along the time.

2.3.5 VOTEC Education under Nationalist Governments and Recent Educational Reforms

Acheampong (2002) has observed that though there were some few differences in the reports of the committees (set up to review education system in the past) in areas like how to finance education, the relative emphasis on technical and vocational education is not worthy. In 1974, a committee headed by Rev. Dr. Dzobo and tasked to come out with up-date educational system (structure) without burdening the citizens unduly (Bening, 1990: 241) emphasized that education should be structured such that potentialities of the individual could make meaningful contributions to national development. In 1987, the Government of the PNDC (Provisional National Defense Council) led by Ft. Lt. J. J. Rawlings proposed a reform of the entire educational structure based upon the Dzobo Committee's report on education. The objectives of the 1987 educational reform inter alia were to pre-dispose and expose every Ghanaian child at an early age to the acquisition of a range of knowledge, language and life-readiness skills –to encourage the child to be self-reliant, resourceful, creative and productive in the ever-developing world of science and technology (Annoh, 1992: 37-42). It was particularly based on this report that technical subjects like Technical Drawing, Pre-Technical Skills and Pre-Vocational Skills were introduced in the curriculum of the Basic Education Schools, precisely at the J.S.S level to expose pupils (students) to technical and vocational education. Besides, in 1990 a number of secondary technical schools were established alongside the old technical/vocational institutes to absorb the large army of students from junior high schools. Again, a policy that seeks to rationalize the administration of vocational and technical education and training in Ghana was formulated. In this policy document, the National Technical and Vocational Examinations Board shall harmonize the assessment and standardization

procedure of the system provided by the various organizations in the country (UNESCO and ILO, 1993).

2.4 Theoretical Framework—Human Capital Theory

Theoretical frameworks allow scholars to organize and synthesize knowledge and conjecture within a field and serve to describe, explain, and predict behavior and experience. Therefore, to open any discussion that would have bearing on the study, the researcher thought it wise and prudent to conduct the study within the theoretical framework of the human capital approach to education (Fitzsimons, 1994 & 1997; Senanu, 1996; Harbison and Myers, 1964). The reason is simply to adopt an analytical tool in understanding how technical and vocational education provides learning opportunities for all manner of people including women in society for individual and community or national development. After all, it is believed that across the world, education is perceived to be connected with getting a job and earning wages. Hence, throughout Western countries, education has recently been re-theorized under Human Capital Theory as primarily an economic device. It has its genesis from *The Wealth of Nations* (1776) by Adam Smith, who formulated the basis of what was later to become the science of human capital. Human Capital Theory is the most influential economic theory of Western education, setting the framework of government policies since the early 1960s. It is seen increasingly as a key determinant of economic performance. A key strategy in determining economic performance has been to employ a conception of individuals as human capital and various economic metaphors such as "technological change", "research", "innovation", "productivity", "education", and "competitiveness". Economic considerations *per se* in the past, however, have not determined education (Fitzsimons, 1994 & 1997).

Human capital refers to the stock of skills and knowledge embodied in the ability to perform labour so as to produce economic value. It is the skills and knowledge gained by a worker through education and experience. Many early economic theories (Adam Smith, 1776; Harbison and Myers, 1964) refer to it simply as workforce, one of three factors of production, and consider it to be a fungible resource -- homogeneous and easily interchangeable. Other conceptions of labour dispense with these assumptions. Therefore, human capital (as defined by Smith) and the productive power of labour are both dependent on the division of labour – The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is any

where directed, or applied, seem to have been the effects of the division of labour (Wikipedia Foundation, Inc., 2009).

Proponents of the human capital theory argue that education and training constitute an investment in human capital. Such an investment yields future returns in the form of income and earnings for the individual, and increased economic growth through enhanced productivity for the society. As stated in Ngware (2002: 24), individuals, being rational, always seek to maximize their utility and productive capacity through the acquisition of skills and knowledge necessary for economic growth (Psacharopoulos, 1995; Senanu, 1996). Cross-country studies have indicated the existence of a threshold of human capital accumulation after which a country may experience accelerated growth (World Bank, 1994). Therefore, the recent reformulation of Human Capital Theory has stressed the significance of education and training as the key to participation in the new global economy. In terms of structural reform, under Human Capital Theory the basis for nation state structural policy frameworks is the enhancement of labour flexibility through regulatory reform in the labour market, as well as raising skill levels by additional investment in education, training and employment schemes, and immigration focused on attracting high-quality human capital (Fitzsimons, 1997).

Critics of human capital theory, while accepting the role of education in the acquisition of technical and vocational skills, argue that there exists no direct linkage between education, occupation, productivity and the commensurate income (Senanu, 1996). Nevertheless, when combined with a general education production function, the human capital theory may help to explain the value of vocational and technical education to the society and individuals.

Lastly, a widely used approach to determine the distribution of educational opportunities is to compare it with a perfectly equal distribution. In such a case, the actual share of a group is compared with the amount that group would receive if all groups under consideration were to receive equal shares.

2.5 Theoretical Perspective—Constructivism Theory of Technical and Vocational and Education Training

Besides, the human capital approach, it was also necessary to conduct the study within the theoretical framework of the Constructivism theory (Fosnot, 1996; Billett, 1996, & Mayer, 1992) which has laid emphasis on TVET. Domains of study and practice, such as vocational and technical education and training, are founded upon both implicit and explicit theoretical frameworks. In this regard, there had been a call for a new look at the theoretical framework for career (vocational) and technical education (Doty & Weissman, 1984; Lynch, 1996, 1997; Osborne, 1999). The concept that learners construct their own knowledge from experience is termed Constructivism (Fosnot, 1999 and Billett, 1996). The essential core of constructivism is that learners actively construct their own knowledge and meaning from their experiences (Fosnot, 1996; Stiffe & Gale, 1995).

According to Kerka (1997: 1), "Transfer of learning from the school to work setting is a chronic concern of vocational education. Constructivism, a learning theory that has received support from recent cognitive research, suggests a way to restructure the learning environment that will make transfer more effective". The theory of constructivism rests on the notion that there is an innate human drive to make sense of the world. Instead of absorbing or passively receiving objective knowledge that is "out there", learners actively construct knowledge by integrating new information and experiences into what they have previously come to understand, revising and reinterpreting old knowledge in order to reconcile it with the new (Billett, 1996). The cognitive structures that learners build include "procedural" knowledge ("how"-techniques, skills, and abilities) and "propositional" knowledge (that –facts, concepts, and propositions). Often neglected are dispositions – attitudes, values, and interests that help learners decide: Is it worth doing? Knowing "how" and "how" is sufficient without the disposition to "do" (Billett, 1996: 43-58).

Clearly, constructivism theory provides a framework that coherently organizes and synthesizes knowledge (e.g., psychological, technical, vocational), and serves to describe, explain, and predict thought and behaviour with vocational and technical education and training. For instance, the role of the teacher in the learning process has often been a major factor in constructivism theory. It is the teacher who instructs, while the learner (student) learns. In actuality, in the constructivist perspective, the role of the teacher is to create

experiences in which students will participate that will lead to appropriate choice making, processing and knowledge acquisition. However, the underlying tenet of constructivism, and the main thread that holds together this array of theoretical positions, is the claim that learners are active in their construction of knowledge and meaning. This activity involves mental manipulation and self-organization of experience, and requires that students regulate their cognitive functions, mediate new meanings from existing knowledge, and form an awareness of current knowledge structures (Doolittle & Camp, 1999: 13). This supports Von Glasersfeld (1996: 7) assessment that "from this point of view then the task of the educator is not to dispense knowledge but to provide students with opportunities and incentives to build up".

2.6 Gender Issues in Technical and Vocational Education and Training in Ghana

Despite the outpouring of information and analysis on gender and development over the past 10 years and the formal commitment to WID initiatives, sizable portions of mainstream academia and the research and action loci remain impervious to the challenge to their unexamined assumptions. In the words of Stamp (1989), compartmentalization of "the women problem" is the chief means by which gender issues are excluded from socioeconomic study and planning. A telling example of this practice is a new book that is being used as a reference source by World Bank planners: *Strategies for African Development* (Berg and Whitaker, 1986). This book includes a good chapter on women in development (Guyer, 1986) that charts many of the problems of the subject, including a critique of agency programs in donor countries and a perceptive analysis of the reasons for the invisibility of women. However, this 603-page book indexes the topic "women" in only one other chapter, that on education, where inequalities for women in education are briefly mentioned and decried. Nowhere else is gender taken into account: indeed, the chapter on technology, entitled "Manpower, technology, and employment in Africa" (King, 1986) is notable for its neglect of the issues so dramatically documented in a host of studies over the past 10 years. Instead, technology is treated as a problem in training for its use, construed in terms of gainful employment, whether in the formal or informal sector, in the factory, or on the farm (King, 1986:431–442).

In the view of Stamp (1989), the World Bank has contributed to the ghettoization of the gender issue. Although the organization has identified the problem (IBRD 1979), its major policy documents on Africa perpetuate the invisibility of women in major economic policy

initiatives. The practice is deeply problematic given that these initiatives help shape the financial programs and development plans of African governments. In 1981, the influential *Accelerated Development in sub-Saharan Africa:* an *Agenda for Action* (the so-called Berg Report; IBRD 1981) included no text or tables referring to women or gender. In the chapter entitled "Basic constraints," underdeveloped human resources are identified as one of the "internal 'structural' problems" that are "obstacles to growth" (IBRD 1981:9–16); nowhere does it mention women as one of these "underdeveloped human resources." Even in discussing agriculture, health, and population, the document neglects the necessity of including women in planning for development. The chapter on human resources (pp. 81–90) is deficient in the same respect Technology is not treated as a distinct problem; rather, it is an aspect of labour problems.

Until the 1970s development policies addressed the needs of women in the light of their role as mothers and wives, as in mother and child health, childcare and nutrition. The benefits of macroeconomic strategies were geared towards the enhancement of the positions of husbands which will intend trickle down to their wives. Contrary to this assertion, Boserup (1970), a Danish economist concluded that women were increasingly losing status as they were becoming associated with the backward and the tradition while men were increasingly associated with the modern and the progressive.

As research and the campaign on the situation on women increased (Tengey, 1999; Akpalu et al, 2000; DFID, 2002), 1975 was declared as the UN international year for women and 1975-1985 was declared as UN international women decade. This attracted more attention to women's issues as a lot of national women's organizations and ministries were established in many countries such as the USA and the UK and helped to institutionalize what became known as "women in development" (WID) policies of governments, donor agencies and NGOs. Gender analysts and feminist activists thought that WID was not an appropriate solution to the problems faced by women as it left the mainstream of development untouched, treated women identically and failed to look systematically at why and how women were disadvantaged.

By the mid 1990s the gender "efficiency" and gender "empowerment" approach had replaced the women in development approach. Here women were seen as agents of change and gender analysts distinguished between sex and gender. Concerns of women and

gender difference were brought into the "mainstream" of development process. Gender activists argued that in structural adjustment policies gender analysis make good economic sense. Thus, understanding men's and women's roles and responsibilities as part of the planning of all development interventions (including technical and vocational education) helps to improve project effectiveness and ensures that women and men play their part in national development (Tengey, 1999; Akpalu et al, 2000; DFID, 2002).

It is for this reason that the issue of increasing women's participation in decision-making became more significant after the Fourth World Conference on Women in Beijing, 14 years ago. Today, governments the world over are using strategic means such as quotas, affirmative action, equity, parity and women empowerment to ensure that there is equal participation of women and men in decision-making processes. Attaining gender parity, as enshrined in the Beijing Platform of Action, is a human rights issue necessary for achieving sustainable and people-centred development (Quaicoe-Duho, 2009: 11, Daily Graphic, Thursday January 29, 2009). For, it was once said that:

> "Half the world stock of intelligence is female, and half the world's human resources are embodied by women….. It will take male and female thinking, experience and effort to fashion a new and better world. In the meeting of men and women on equal terms, a new dynamism and creativity can be developed, said by Borje Hornlund, Swedish Minister of Labour" (Bullock, 1994: 1–3).

Similarly, the former UN Secretary-General, Mr. Kofi Annan once remarked that: "Women play a crucial role in development, but they have largely been ignored by attempts at poverty reduction. While globalization has brought about an explosion in the jobs market, the benefits for women have been mixed. Study after study has shown that there is no effective development strategy in which women do not play a crucial role. When women are fully involved, the benefits can be seen immediately; families are healthier and better fed; their income, savings and reinvestments go up. And what is true of families is also true of communities, and, in the long run, of whole countries" (Gaag, 2004: 42).

2.6.1 Concepts: Stereotype, Sex, Gender and Technical and Vocational Education and Training

The concept of stereotype in the views of Pilcher and Whelehan (2004) was introduced into Social Science in 1922, when Lippmann used it to describe the "typical picture" that comes to mind when thinking about a particular social group (Macrae et al, 1996). A stereotype can be thought of as a cognitive method or procedure, used by our mind in order to simply explain the complex barrage of information it experiences. From this perspective, a stereotype is a method of understanding which works through classifying individual people into a group category. This definition of a stereotype, however, omits the important issue of content. As a "typical picture" about a social group, a stereotype may be negative or positive, accurate or inaccurate, justified or unjustified. It is the negative, the inaccurate and the unjustified stereotypes that cause us most concern (Schneider, 1996).

"Sex" we are using here as Ogundipe-Leslie (1994: 153) put it, means "the biological, physical characteristics of male and female". Sex is biological: females have two X chromosomes and males have one X and one Y chromosomes (UNICEF Report, 2006: 1-2).

Gender, which is a concept we now use, came into common parlance during the early 1970s. It is a concept that denotes the varied and changing facets of the roles of females and males, as well as being used to describe the socio-cultural, economic and political systems of which they are a crucial part. Several indicators are commonly used to access and compare women's positions in their own societies as compared with men. Among the frequently used indicators of women's position are women's control over and access to various resources and assets compared to those of men; the degree of their autonomy from men, disparities in human development indicators (for example health and educational status) between men and women or other aspects of their privilege or oppression, intrinsic in social legal institutions (Oppong et al, 2006: 2-3). In the views of Bullock (1994: 1 - 3) gender roles are not inborn but rather learned. What is, therefore, important is to explain gender as a social construction and not a law of nature. This means that it can be challenged and ultimately, transformed.

is the satisfaction of the immediate needs of its members" regardless of the degrees of hardship, self-sacrifice, self-effacement within which she has to cope; that her role is to mother the male family members and treat them with indulgence.

In the views of Bird and Melville (1994) citing Sapiro (1986), children at home are told by parents, things like "Go and help your mother in the kitchen so that when you grow up, you will be a good mother too". "You don't want that boy, that's for girls". "Don't sit like that –it's not lady-like". Similarly, children learn gender roles from their parents when they observe them performing their various roles. For instance, when the mother goes about her expressive role such as child care, cooking, house cleaning, hospitality and the father perform his instrumental role such as giving out money for housekeeping, taking major decisions in the family, paying school fees, washing cars and mostly driving, both the girl and boy would copy and learnt these roles respectively. Clearly, the responsibilities indicate one's maleness and femaleness as such in the family.

These among other reasons have led to the general belief that the main contributory factors to the dearth of females' participation in technical and vocational education are the sex stereotyping and gender roles, attributes, and activities of the society. For example, research by Amader (1997) has indicated that hormonal factors contribute to stereotyping. Hormones such as testosterone are believed to be largely responsible for the sex drive, which contributes to the aggressiveness of males. The female sex hormones, estrogen and progesterone, has many effects on the body. With regards to these hormonal changes, men are normally found to be involved in more strenuous work than women. This is seen in male-dominated areas such as masonry, welding, painting and decoration, spraying, refrigeration, etc. while women engage in sewing, childcare, secretariat, catering, hairdressing, etc.

Besides, it has come to light that some parents due to financial constraints will sponsor male child vocational and technical education at the expense of females; some prefer to give their female children in marriage in return for dowry and financial support for the education of males. As a result, only a minute percentage of women is represented in technical and vocational education resulting in few of them gaining employment opportunities in male-dominated areas. As cited in White et al, (1992: 46 - 47), Crompton and Sanderson (1986) suggest that many of the qualifications acquired by women are

employment. Hence, a growing concern over the under-representation of women in many vocational, technical and scientific education programmes at all levels.

In Ghana, for instance, training statistics of vocational and technical training from 2002 – 2004 indicate that 8,361 people were trained. Of these 6,159 (74%) were males while 2,202 (26%) were females. In 2006, there were 7,211 trainees consisting of 5,530 (77%) males and 1,685 (23%) females. This calls for government intervention to ensure that public apprenticeship programmes are genderised. Promoting equal access to skills training is important but this must be matched by training which is socially and economically viable and relevant. The practice has been to provide training that may not lead to gainful employment because, in many cases, the training perpetuates low skills, obsolete technologies, traditional, and usually non-remunerative trades and job stereotypes (Ghana Human Development Report, 2007:32).

Drawing conclusion from the above, it is clear that women's participation in technical & vocational education has been relegated to the background irrespective of their high aptitude demonstrated at the lower–level of education. For example, a recent research conducted in Ghana proves that women's enrolment is about zero % in male-dominated areas. It has been revealed that "in the secondary technical schools, which emphasize technical courses like auto mechanics, refrigeration, electronics, applied electricity, building construction and metal work, there are even fewer female students" (Ghana's HDR, 2000: 74). Again, Ghana Living Standards Survey (2007: 13) has indicated that among the major trade groups in the various industrial sectors of the Ghanaian economy, tailoring is the most common for both females and males. This is because in a sample of 3,438 trainees that were taken, about 37% (66% of females and 13% of males) of them are estimated to be engaged in tailoring. The other major trades like carpentry, masonry, blacksmithing, mechanical, electronics/electrical, block laying and concreting and painting/spraying are dominated by males, with less than 2% of females engaged in them. The enrolment and retention rates are even lower in the three northern regions. See the enrolment trend in Table 2.1 and Table 2.2 at the national and Northern Ghana below:

Table 2.1: Distribution of apprentices by main trade, sex and locality (%) in Ghana in 2007

	Locality								
	Urban			Rural			Ghana		
Main Trade Learnt	Male	Female	All	Male	Female	All	Male	Female	All
Carpentry	16.6	0.4	8.5	15.7	-	9.0	15.8	0.2	8.8
Masonry	8.5	-	4.4	11.4	-	6.6	10.2	-	5.7
Tailoring	13.2	64.4	37.8	12.5	68.1	36.0	12.8	66.4	36.8
Blacksmithing	4.0	-	2.1	3.4	-	2.0	3.6	-	2.0
Mechanical	17.2	0.3	9.1	11.2	0.4	6.6	13.6	0.3	7.7
Electronics/ Electrical	8.9	-	4.6	5.0	-	2.9	6.5	-	3.6
Painting/ Spraying	4.8	1.1	3.0	3.1	0.7	2.1	3.7	0.9	2.5
Other	27.5	33.7	30.5	37.7	30.8	34.8	33.6	32.1	33.0
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Living Standards Survey (GLSS 4) by Ghana Statistical Service, 2007

Table 2.2: Employed persons of 15years and above by occupation, sex and region in Northern Ghana (%) in 2005

Type of occupation	Northern Region		Upper East Region		Upper West Region	
	Male	Female	Male	Female	Male	Female
Blacksmith/toolmakers	46.8	5.7	30.4	3.6	11.8	1.4
Electrical/Electronic works	48.3	10.1	90.4	2.6	11.8	2.3
Plumbers/Welders	43.5	22.0	18.6	3.6	9.7	2.3
Painters	44.3	11.2	20.0	3.4	17.6	3.2
Bricklayers/Carpenters/other constructions	37.9	5.1	26.4	6.1	18.8	5.5
Engineers	51.4	9.8	17.0	2.1	15.2	4.4
Others	-	-	-	-	-	-

Source: Population and Housing Census of Ghana (GSS, 2005).

2.6.2 Abilities in Girls towards Technical and Vocational Education and Training

Available literature which indicated that there are differences in ability which means boys relate more easily to technology and physical sciences than girls. But Kelly (1987) in his "Missing Half" indicated that the only evidence for a biological basis for the differences centred on visuospatial ability.

More recently, Kumara (1992) had noted that men are better at spatial reasoning due to harmonious influence on the brain and also at target directed motor skills (finding a hidden shape in a complex drawing) and mathematics reasoning. Women on the other hand, are better at test of perceptual speed, memory, verbal precision task and mathematical calculations. In reviewing the then current findings of psychometrics test, Gray acknowledged that boys do better than girls at spatial ability but was also quick to ask why this should matter (Kelly, 1987). Harding and Grant (1984: 18) partially answered these concerns when they said: "no serious study has been reported of the skills required for the pursuit of the physical sciences. It is assumed that competence in mathematics is needed and that some form of spatial ability is involved." Research has also revealed that girls taking technical subjects increase their score on spatial visualization test; significantly, more than those taking domestic subjects. The research further threw more light on the importance of experience working with materials to make these dimensional models (Smail, 1984).

Kelly (1987), found out from research conducted by GIST (Girls in Science and Technology) based at Manchester Polytechnic that at age eleven girls and boys were achieving equally well in science but girls were not interested in physical science as well as in nature studies. Both boys and girls were interested in human biology. Possible reasons for the differences were that: "Girls who showed interest in physical science at age eleven were likely to have experienced a lot of linking activities (such as using tools, maintaining bicycles and playing with construction toys)" (Smail, 1984: 130). Riggs (1992) equally expressed similar sentiments that women engineers have spoken of such linkages in their early childhood. He also noted the differences in the way girls and boys approach problem-solving activities in technology as observed by teachers and researchers. Accordingly, girls often take longer discussion and planning on activity than boys and need to be encouraged to make a start. Boys, on the other hand, are willing to have a go and adopt a trial and error approach. Therefore, giving time and encouragement,

girls can succeed equally well if not, better than boys. The statement further noted that teachers judging such reluctance in girls will reinforce or help to overcome lack of confidence many girls feel.

Drawing conclusion from these views, one can confidently say that issues which see girls' deficiency in some way are now discredited. This, however, does not imply that differences are not acknowledged; rather the differences are to be respected and valued, in the sense that every human being has his/her given talents that can be explored if given the opportunity.

For, there is available literature which indicates that there are women who have gone through technological courses from technical institutions and are found to be engaged in male-dominated areas, demonstrating that they are capable with their gifted talents as men never thought. A case in point is a story on page 26 of the Daily Graphic of Thursday, February 5th, 2009, titled "Light Aviation –A growing Ghanaian industry." Here a story is reported of three-key personnel who are young Ghanaian women in their early twenties in the flying school training at Kpong Airfield in the Eastern Region of Ghana. One of them Rosina Martey, who runs the airfield site and also the Airfield Facilities Manager, oversees and trains a team of young Ghanaian men in the day-to-day management of the 100+ acre site. She completed her Higher National Diploma (HND) in Electrical Engineering before joining the team. According to the article, Patricia Mawuli, a trainee aircraft engineer and pilot, ever flew from Kpong Airfield to Sunyani, over flying the airstrip under construction at Techiman during a recent survey carried out in the Northern Region. Besides, it came out from the reporter that in the workshop one could find Jenifer Adegah and Patricia Mawuli who have become quite expert at making aircraft components, building sub-assemblies, and installing aircraft engines and servicing and rivet work. They explained that "We love working here…..it is hard work and we often start early, finish late and forget the time! When we hear that the boss is going to be working on a day-off we want to be there too –there is so much to learn and the training is not only serious but also very enjoyable. We particularly like working on the medical aircraft for medicine on the move….., it means a lot to make a machine that can fly doctors and nurses or sick people around the country" (Yaw, 2009: 26, Daily Graphic, Thursday February 5).

In another development, Miss Theresa Aggrey-Fynn was able to break through in 1989 when she was selected as the only female among 40 males; to undergo a World Bank sponsored training for three months in auto-body spraying at the Kumasi Technical Institute. After she passed the trade test, she has since opened a workshop where she now works at Suame Magazine in Kumasi, training other females since 1995 as auto-body sprayers (Dolphyne, 2005: 45). This has gone to buttress the point Yadav (2000:200) made that "to improve any society, development of both male and female individuals should be on equal footing. Stress on the education of the female child should be more……."

2.6.3 The Role of the School Counselor in Promoting Females Participation in TVET

Swami Vivekananda had said decades back that, "as a bird cannot fly on one wing, no society can make progress unless its women join men in all activities". In other words, to improve any society, development of both male and female individuals should be on equal footing. There is the need therefore to stress more, if not in equal terms on the education of the female child and that of the male counterpart. Unfortunately the scenario is just the reverse. It is the male child who is more privileged and gets a better chance in every aspect of life (Yadav, 2000: 201). These restrictions of educational opportunities and that of career opportunities lead directly to the political, social and economic disadvantage of women through working life.

Perhaps this explains why as stated in White et al (1992: 45 - 48), Walsh and Osipow (1983) are of the view that educational level is one of the most powerful predictors of career achievement in both men and women. Women's educational level certainly seems to be strongly related to the type and extent of their vocational participation. It is also related to a stronger career orientation and career salience (Astin and Myint, 1971), and to the choice of pioneer as opposed to traditional careers (Almquist, 1974).

Career choice is outlined by Hall (1976) as not just the choice of an occupation, but any choice affecting one's career. He claims that theories of occupational choice fall into two basic categories: "matching theories", which describe what kinds of people enter what kinds of occupation, and "process theories", which describe the manner in which people arrive at an occupational choice (White et al., 1992: 11). It is the second category –i.e. the

process of occupational choice –which is the main concern of the researcher in this write up.

For instance, it has come to light that more and more linkages are being developed between education and work; there is a great concern for the rising rates of youth unemployment. There is a great need to create a labour force which would be capable of working in growing complexity of technological application; proper attitudes and skills for employability have to be developed among the youth; there is a shift in proportion of women leaving the home and entering the work force. All these point to the need for an adequate programme of career guidance for students (pupils) and the school leavers, particularly girls. For, in the words of Yadav (2000) the identification of some skills and occupation as "suitable" or "relevant" to women should no longer dictate the choice of subjects. The selection of subjects should be based on the aptitude of the individual and the employment potential. In this regard, adequate guidance and counseling services should be made available to all the students.

It is in line with this that the term "educational counseling" which was first coined in 1914 as a process of rendering services to pupils who need assistance in making decisions about important aspects of education, such as the choice of courses and studies, decisions regarding interest and ability, and choices of higher institutions of learning was recommended. In the views of Gibson and Mitchell (1990) vocational counseling which facilitates the learner's development involves: helping students become aware of the many occupations to consider, and assisting them to decide what to do after school. Kodwiw (1978: 34) further underscored the point when he explained that "vocational guidance is the advice given to individuals about suitable types of work, professions or educational courses to pursue, according to their abilities. Every person has a profession best suited to his or her natural abilities or inclinations."

In this direction, it has been emphasized that technical and vocational education and training should be a multi-domain concern, requiring collaborative and integrated approaches. Hence its programmes should be designed as comprehensive and inclusive systems, accommodating the needs of all learners and accessible to all. Special efforts should be made to reach the marginalized groups and programmes designed to facilitate entry into the mainstream. Technical and vocational education and training programmes

are needed to be gender-balanced, attracting women into previously male-dominated areas (UNESCO, 1999; UNESCO, 2002). Thus, there is the need to incorporate the role of guidance school counselors or counseling services/programmes into the educational ladder starting from the first cycle institutions (basic levels).

Perhaps it was in line with the difficulties of making career choices among students that Gibson and Mitchell (1986) have identified the following traditional roles for school counselors at the secondary/technical school levels. They were of the view that (ibid, 1986), if school counselors were sharply aware of these traditional roles, it would help them communicate effectively these roles to their clients (students) and the institutions they work in, particularly gender related issues:

- Assessment of students' potential and other characteristics: this is an aspect of the student appraisal service, which involves planning, implementing and interpreting achievements, ability and interest-testing programmes.
- Counseling individual student: the counselor listens to student's personal, educational, vocational and social worries and helps him/her to select appropriate strategies to resolve these concerns.
- Group counseling and group guidance: counselors organize group guidance and counseling to address students' educational problems and concerns that they seek to overcome. These may include drug abuse, poor study habits, self-esteem issues and problems to do with relation to others.
- Career development, guidance and information activities: these include providing students with information about careers and content of school's curriculum. It also includes other guidance programmes on topics like self-awareness and vocational decision-making. It is also known as educational and occupational planning. Here the counselor helps students to plan their education in line with their vocational choices. The counselor provides information about the world of work and guides students in their choices of careers.
- Placement, follow-up and evaluation: these involve activities such as assisting graduating students and drop-outs in getting jobs, conducting group sessions for students in resume writing, completing job applications and acquiring job interview skills. It also includes job application and follow-up strategies.
- Consultation: consultation may be done with teachers and other school personnel, parents and appropriate community agencies to help parents to better understand

their children and the problems that their children are encountering. Through consultation, the school counselor can;

- ✓ Help to solve family conflicts concerning career and educational choices.
- ✓ Help teachers in such areas as students' behaviour, motivation and adjustment.
- ✓ Consult with the school psychologist on specific cases.

In the view of the researcher, placement which is the process of linking education and work is the responsibility of vocational education. It is, therefore, assumed that if these traditional roles were properly institutionalized and strategically implemented at both the basic and secondary educational levels in Ghana, particularly in Northern Ghana, it would go a long way to avoid the attritions of females and ensure participation in TVET for national development.

2.7 Conceptual Framework

A conceptual framework is formed of patterns of concepts and interconnections. They provide generalizations about processes and about the interaction of the concepts (Fisher, 2007). In the views of Miles and Huberman (1994) conceptual framework simply explains, in narrative form the main things to be studied; namely the key factors, variables and their relationships. It is for this reason that a conceptual framework has been developed and is presented using two diagrams.

Figure 2.2 is a situational tree concept which focuses on the causes and effects of low female participation in technical and vocational education and training. The remote cause of low female participation in TVET presented in figure 2.2 is economic constraints which has a major effect on the full implementation of policies on TVET in Northern Ghana and the country as a whole. This has resulted in lack of training facilities, tools and equipment, inadequate trained personnel that may lead to difficulties in training and placing female graduates particularly in male-dominated courses towards the job market. This is because training programmes offered sometimes do not meet the requirement of the labour market considering the manpower needs of the industry or commerce. In addition, lack of sufficient funds comes with problems facing gender participation in technical and vocational training institutions. It has cultural consequences towards female education to the extent that some parents prefer educating their male wards in general education

including TVET to the detriment of the females. The reason is that these females will marry and their husbands will be the sole beneficiaries. Besides the perception that women cannot marry and give birth when they are trained in technical courses especially the male-dominated ones and that women lack physical strength to do male-oriented jobs by handling heavy technical tools and equipment as well as lack of female role models in TVET, among other things, have plagued the implementation of technical and vocational policies or programmes for the benefit of all (ISIS International, 1991; Annoh, 1992).

The effects of this on TVET imply that there will be gender stereotyping in society. This is because some parents or guardians due to financial constraints and other reasons best known to them will sponsor the male child education at the expense of females. The end result of this is that many females drop-out before they complete their elementary and secondary schooling. Those who stay either stay in the long run to become unemployed or pursued vocations traditionally required by society as women's; these include catering, embroidery, hairdressing, etc. Also, the challenges of gender participation in technical and vocational training institutions in the long run cause low contribution of women in national development. This will reduce output in TVET and the world of work, leading to low salary or income levels and low standard of living among women because they are tired only to female-oriented economic activities to the neglect of other technological opportunities perceived to be the preserve for men.

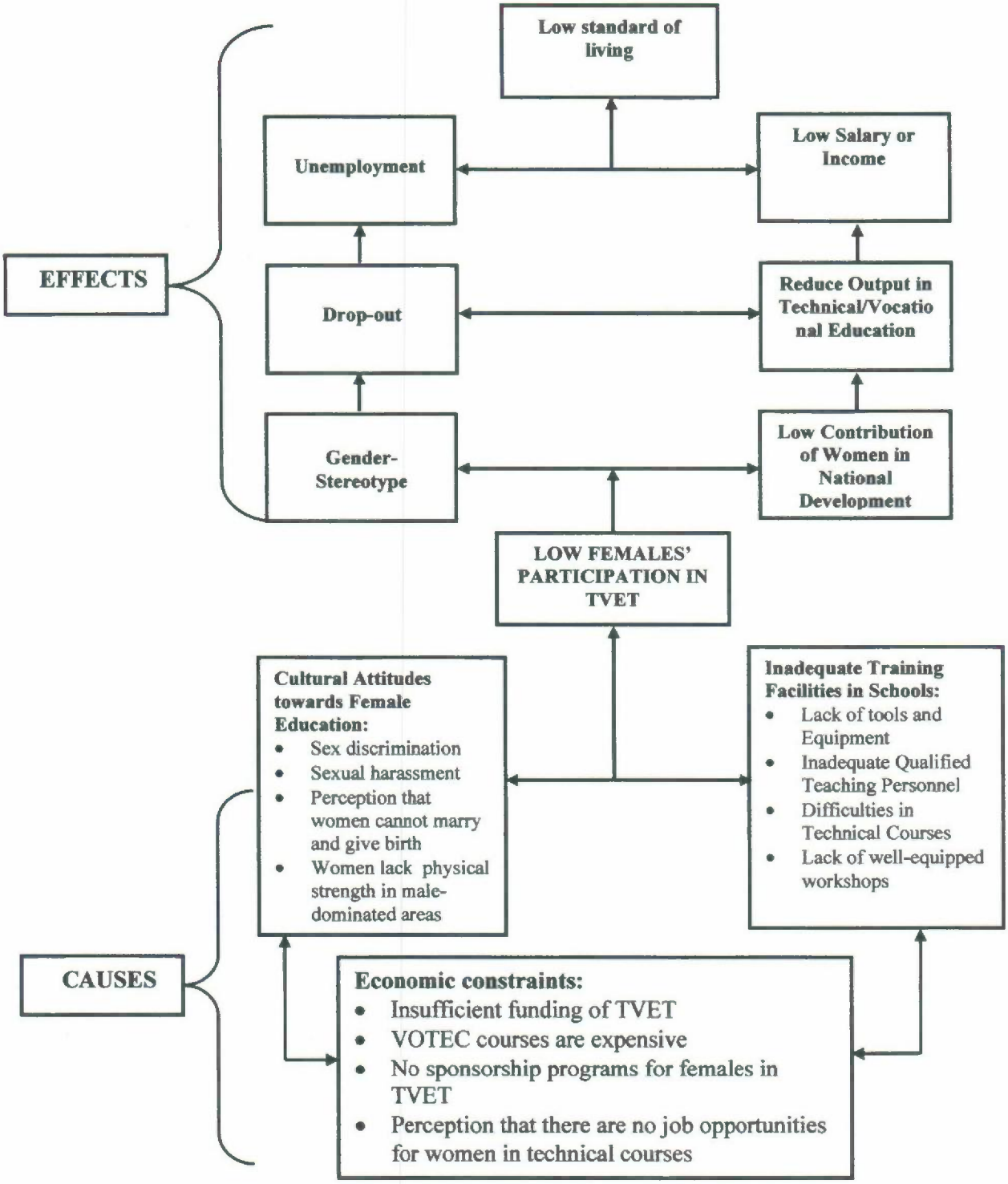


Figure 2.2: A Situational Analysis of Females' Participation in TVET in Ghana
Source: Author's Construct, 2010.

Figure 2.3 is an organizational chart which focuses mainly on the efficiency, maintenance and management of the technical and vocational education and training (TVET) system in

Ghana. It has highlighted some of the major institutions that provide TVET programmes for potential trainees. Figure 2.3 demonstrates that when technical and vocational training institutions are well managed and used for the purpose they are intended, the chances or opportunities for success to all manners of people cannot be quantified. In short, there are a lot of benefits that accompany them in a way of fighting unemployment or poverty among the vulnerable in society.

Figure 2.3 demonstrates that sector ministries and their agencies have legal mandates to make policies and implement the policies necessary in the delivery of TVET. At the apex is a body called COTVET (Council of Technical and Vocational Education and Training) established in 2004 to coordinate and oversee all aspects of technical and vocational education and training in Ghana.

Notes:

- The Ghana National Qualifications Authority (GNQA) is an autonomous agency of COTVET (Council of Technical and Vocational Education and Training).
- The Industry Training Advisory Committees (ITACs) coordinated by the Industry Training Advisory Board (ITAB), determine training competencies and standards. The GNQA is the accreditation and certification body. Thus there is a separation of functions.
- The Training Quality Assurance Board (TQAB) is an agency of the GNQA. Its function is to provide accreditation services to the authority and monitor as well as evaluate the performance of the TVET delivery agencies. Existing capacities in the following bodies, namely; NABPTEX, TEU of GES, NACVET and NVTI should be utilized in establishing the Training Quality Assurance Board.
- Training Agencies (Government Ministries and Public Institutions, Private Organizations, NGOs, Religious bodies) and individual training institutions/providers are accredited by GNQA to provide training, and assess performance for purposes of certification.

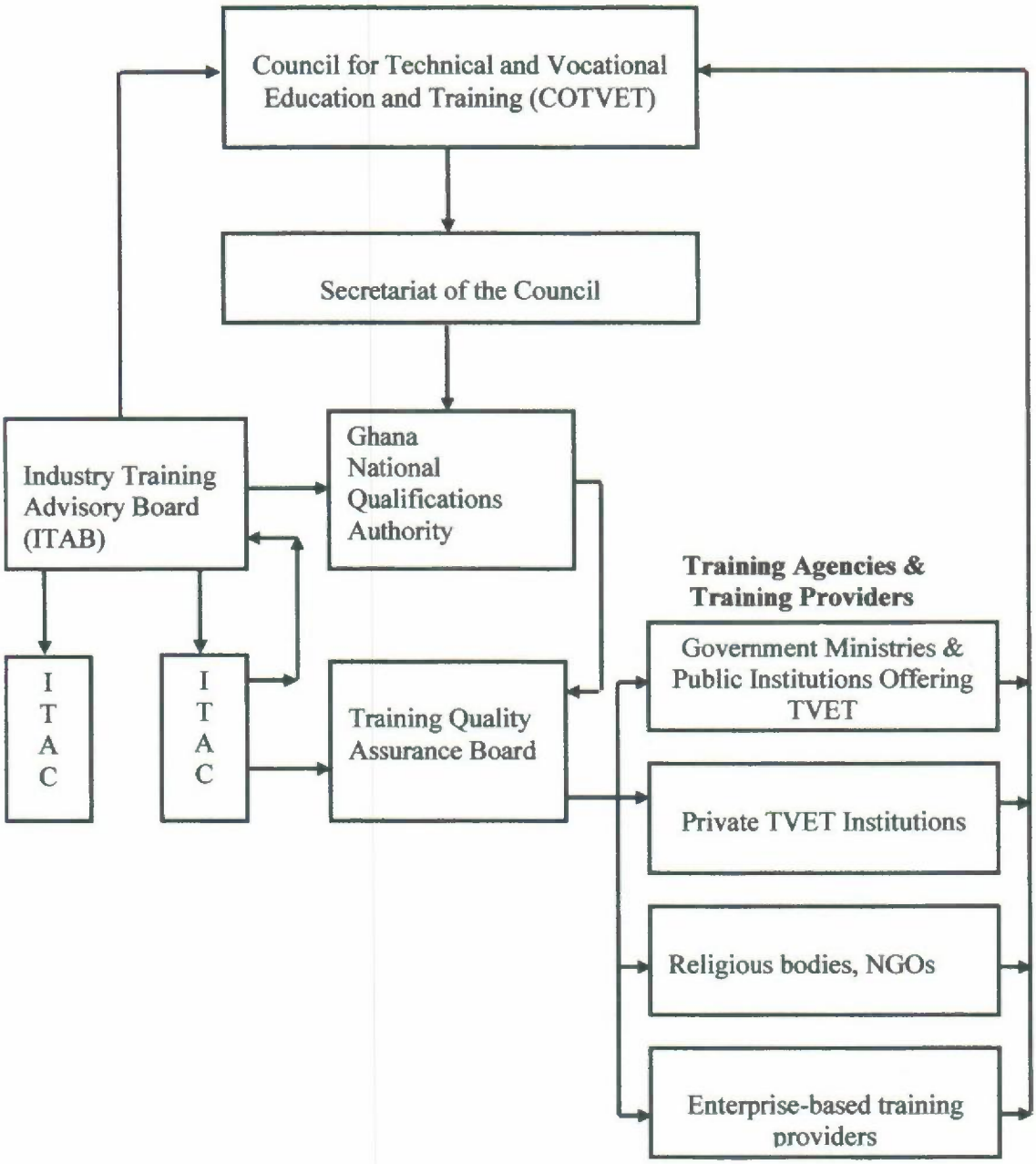


Figure 2.3: Technical and Vocational Education and Training Institutional Structure in Ghana

Source: Author's Construct, 2010

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research methodology used in the empirical survey. Research methodology in the words of Panneerselvam (2004: 2) is defined as "a system of models, procedures and techniques used to finalize the results of a research problem". The methodology for this research employed various instrumentations needed to come out with findings based on actual results from the field. The chapter provided the framework that was used to guide data collection, codification, synthesis and analyses. The descriptions of the procedures have been captured in details for readers in doubt to follow it and replicate the study. This was done according to sub-headings which include: brief profile of the study area, research approach, research design, target population; sample and sampling procedures, instruments for data collection, data collection procedures, data processing and analysis, and last but not the least field challenges.

It is, however, important to note that in every research the choice of a suitable research methodology must be guided by the theoretical underpinning of the study, the nature of the research problem, how data would be analyzed, interpreted and presented. It is for these reasons that care was taken in the choice of using a particular research approach bearing in mind the following factors: the purpose of the research, its specific objectives, and validity, available financial resources, the skills of the researcher in data analysis and interpretation, and the social organization among others.

3.2 Brief Profile of the Study Area

The Northern Ghana presents a particularly appropriate environment to undertake such a study. This part of the country has always been considered one of the country's poorest including educational and employment opportunities. It occupies an area of about 70,000 square kilometers, representing approximately twenty-five percent (25%) of the entire land area of Ghana. Northern Ghana mainly consists of three regions even though some writers or geographers always try describing some parts of Brong Ahafo region to be included. The area has a total population of 4,177,798; representing 17.3 percent of the population of Ghana (24,223,431) based on the 2010 Population and Housing Census. The regions are: Northern Region, with a total population of 2,468,557(10.2%), Upper East Region, 1,031,478(4.3%) and Upper West Region had 677,763(2.8%) (Ghana Statistical Service,

February 2011). The statistics further indicated the population of the various regional capitals as follows: Tamale had a total population 1,210,702 representing 49.0% males and 1,257,855 (51.0%) females followed by Bolgatanga with 497,139 representing 48.2% males and 534,339 (51.8%) females. Wa had a population of 333,355 with males representation of 49.2% and females 50.8% (344,408). The area shares boundaries with neighbouring countries like Cote d'Ivoire in the north-west, Burkina Faso directly in the northern part, and Togo in the north-eastern part of Ghana.

Regional inequality is also significant: average per capita incomes are 2 to 4 times lower than elsewhere in the country, and, while inter-regional income inequality accounts for only about 1/5 of total inequality in Ghana, it increased during the 1990s, and it could be anticipated that this trend will have continued into the new millennium. As the Ghana Living Standards Survey (GLSS 4) put it, in Ghana the poverty line at 90 Ghana cedis per annum and absolute poverty includes all persons earning less than 70 Ghana cedis per annum (Ghana Statistical Services, 2000b). It was indicated that poverty in Ghana is concentrated in the savannah ecological belt, which covers the three northern regions: Upper West, Upper East and Northern regions. The poor in Ghana therefore continue to be concentrated in these three regions (ibid, 2000b; World Development Report, 2006).

Out of 18.2% of the total population that live in extreme poverty, 53.7% live in Northern Ghana, which has only about 17.2% of the Ghanaian population. All data from every credible institution or source speak about the desperate condition of the north which has much higher levels of poverty than any other region (Atengdem, 2009: 1-5). Even so, the poverty map of Ghana indicated that there are significant differences in the northern regions. Thus, the incidence of poverty in the Upper East Region and Upper West Region is significantly greater than in the Northern Region, and even increased substantially in the Upper East Region between 1991/1992 and 1998/1999 and a little in the Northern Region. The depth of poverty also increased substantially in Upper East Region (World Development Report, 2006: 16 - 17). According to Ghana Statistical Service Report (2007), the highest poverty incidence occurs in the Upper West Region, where the figure increased from about 84% in 1998/1999 to about 88% in 2005/2006.

3.2.1 Climate and Vegetation

Northern Ghana falls in the Guinea Savannah Climatic Zone and experiences two seasons –raining season and a long dry spell. The rainy season starts from June to October giving way to the dry season from November to May. The rainfall distribution varies from year to year sometimes with intermittent droughts and floods mostly peaking in August. Generally, the rainfall ranges from between 900 – 1000mm per annum.

The occurrence of droughts or floods affect crop growth, thus resulting in reduced crop yields in most parts of the region every year, as optimal nutrients intake by the crops is impaired. A case in point was the devastation following the droughts and floods of 2007 which resulted in widespread food crop loss further compounding the already high levels of poverty in the region. Dry and night temperatures range from 18°C – 40°C. During the dry harmattans, the humidity is so low that the rate of evapo-transpiration is highly favoured by the dry winds. During this period of extremely warm weather, deaths caused by outbreaks of Cerebra-Spinal Meningitis (CSM) and other diseases are common in this part of the country (Nsiah-Gyabaah, 1994; cited in Hardiman, 2003).

The vegetation of the area is Guinea Savannah Woodland with light under growth and scattered trees. The major economic trees are shea, dawadawa, and baobab and neem species. The most common food crops are millet, guinea corn, maize, beans, bambara beans and groundnuts, and some vegetables are grown, mainly tomatoes, onions, pepper and okra for sale.

Much of the natural vegetation of the savannah woodland has been destroyed immensely, and consequently the environment by human activities such as bush burning, tree felling for fuel, inappropriate agricultural practices, sand and gravel winning. Because there is not enough land to allow for fallow periods, many areas have been stripped of the top soil. Yields are insufficient to provide adequate nutritional levels and seasonal hunger is chronic almost all the time. Confronted with these problems, an interdisciplinary approach is needed in the formulation of policies to improve levels of living in the savannah areas (Nsiah-Gyabaah, 1994; cited in Hardiman, 2003: 37-38).

3.2.2 Major Occupations and Educational Attainment

The major occupations in Northern Ghana are largely determined by the type and nature of the prevailing activities. Nationally, the four occupations are agriculture and related activities, production and transportation, sales and related activities, professional and technical activities. This general pattern is representative of all the regions of the country. However, the occupations in Northern Ghana in order of magnitude are agriculture and related work (about 60%), professionals, technical and related work is only 10% and the rest (30%) are in Sales, Services, and transportation and production (Ghana Statistical Service, 2005) and are mainly gender segregated. As indicated in chapter one, the category of these employment opportunities available are skewed in favour of the men. And because women lack education, training and skills, the majority of them in the area (Northern Ghana) tend not to be able to improve their opportunities and, therefore, they remain in low skilled, low status and low paid jobs including agriculture and trade (Awumbila 2001; Lloyd and Gage-Brandon 1994; Manuh 1993). For example, whereas 27.4% of working females are engaged in trading, only 7.4% of males are traders (Ghana Living Standards Survey, 2007).

According to Ghana Human Development Report (2007: 29), there are regional differences in access to primary school. Regions in the southern sector of the country have greater access to primary education than the northern sector. The Upper East Region has the poorest access to primary education (61.9%) followed by the Upper West Region (67.1%). The factors that account for the low access to primary education in the three northern regions include sparse population distribution, poverty and the general deprivation in most areas. Access differs from urban to rural locations. Urban areas have better access to primary education than rural areas (93.2% compared to 81.0% respectively).

The picture is grimmer with respect to access to secondary education. The national average for access to secondary school is 43.3 percent, but it is even worse for the northern regions which average 15.5 percent. Apart from the north-south disparities, there exist differences between rural and urban areas. Access to secondary education is higher in the urban areas (62.6%) than in rural areas (28.8%). Similar explanatory factors of poor infrastructure and poverty, coupled with the tendency for more qualified secondary teachers to refuse posting to rural areas. Thus, in terms of education and related personal

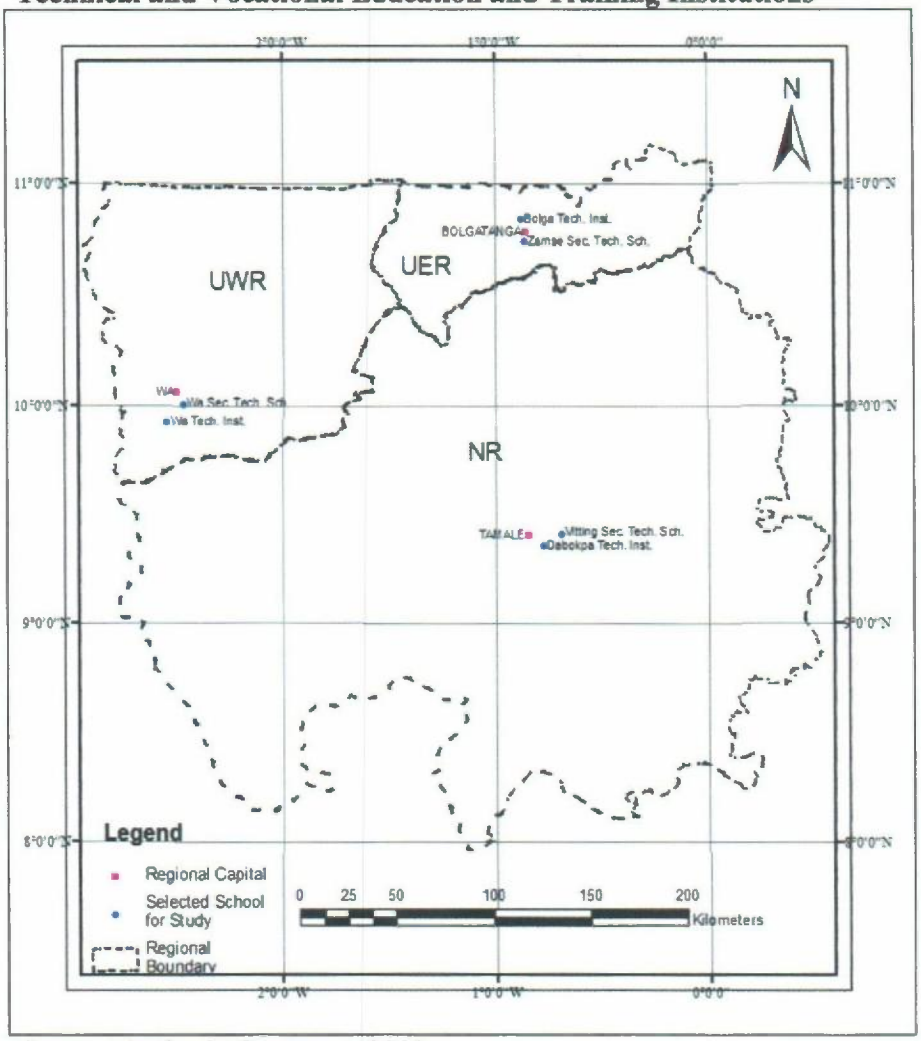
self-fulfillment and advancement, Northern Ghana in particular and also the rural areas are increasingly excluded (Ghana Human Development Report, 2007: 29-32). No doubt the level of illiteracy in Northern Ghana recorded 78.7% for Northern Region, 78.1% for Upper East Region and 75.5% for Upper West Region. In Ghana, the level of illiteracy is higher for females than males in all regions. But it is much worse for the three northern-most regions (GSS, 2002: 7-8).

The situation is even disastrous when it comes to geographical and gender gaps' in enrolment in technical and vocational education. For instance, enrolment in technical and vocational education remains regrettably very low for both males (3.3%) and females (2.2%) in Northern region. In the Upper East Region, the proportion with technical/vocational education is 1.7% males against 1.0% females. However, in the Upper West Region data on current enrolment shows that both sexes (boys and girls) in technical/vocational schools attendance are same and stood at 5.6% for each sex group (Ghana Statistical Service, 2005). Some reasons alluded to these developments are that; many of such schools require much investment in equipment and infrastructure, the low girl-child education, especially after the primary school level is not merely poverty but the extreme poverty of parents and last but not the least the fact that not much education has been given to change the age-old perception that the girl-child's education is a waste of parental resources and will only benefit the man she marries in the future (ibid, 2005). In the contribution of Coombe (1988), such low enrolment may be because fewer girls come forward for such courses (fearful of harassment and hostility from boys) or because provision is less generous than for boys.

Perhaps it is as a result of some of these reasons that made Botchway (2004: 4 -7): to indicate that at the time of Ghana's independence in 1957, Northern Ghana represented the classic case of regional disparity in all spheres of "development" as compared to other regions of the country. This explained why within the framework of British colonial economic and political policies, the people of Northern Ghana "were regarded as an amiable but backward people useful as soldiers, policemen and labourers in the mines and cocoa farms; in short fit only as hewers of wood and drawers of water for their brothers in the colony and Ashanti.

It is for these reasons that the region has been the target of specially designed "development" interventions in recent times including the Ghanaian state and international agencies in bridging the development gap through new pragmatic policy initiatives. A case in point is the preparation and implementation of the Northern Development Strategy and the establishment of a Northern Development Fund with seed money of 25 million Ghana cedis by the Ex-President, His Excellency John Agyekum Kufuor. The Bill of this NDF initiative was passed on the 7th of November 2008 by the Parliament of Ghana and assented into Law on 4th December 2008 by the government of the New Patriotic Party (NPP) and it has been continued by the National Democratic Congress (NDC) led by President John Evans Atta Mills and designated Savannah Accelerated Development Authority (SADA). The purpose of the NDF was to, among other things; provide financial resources in line with the northern development strategies to enable the north accelerate social and economic growth; transform the structure of the northern economy; and for social protection interventions for poor, vulnerable and excluded persons in these areas (Atengdem, 2009). This notwithstanding, the researcher thinks that there is still more to be done in terms of bridging the development disparity gap between the north and south. Below is a map of Northern Ghana showing the regions and their capital towns with the respective selected institutions where the study was carried out.

Figure 3.1: Map of Study Area (Northern Ghana) Showing Selected Technical and Vocational Education and Training Institutions



Source: Author's Construct, 2010.

3.3 Qualitative and Quantitative Approaches

The study has combined both qualitative and quantitative approaches in data collection and analysis. At the heart of the disagreements are the questions of what is considered legitimate as knowledge and what constitutes legitimate research (Garman, 1996). According to Garrison and Shale (1994: 23) as stated in Imel, Kerka & Wonacott (2002), the answers to these questions--- were based on the presumption that truth is obtainable through a particular paradigmatic view of science and research. Although there is now wide recognition of the patently false conclusion that knowledge derived from one source is inherently superior, nonetheless epistemic privilege and methodological imperialism persist.

Most methodological commentators (e.g., Kumar, 1999; Twumasi, 2001; Amedahe, 2002; & Osuala, 2007) seem to agree that two distinct approaches (qualitative and quantitative) can be said to exist but the most important difference is the way in which each tradition treat data. In the opinion of Bacho (2001), the cardinal issue that faces social science research is the choice of the appropriate research approach and method to investigate the specific problem. This goes to support the view that social issues are varied phenomenon and difficult to capture for investigation. The reason for this lies in the nature of social phenomenon and the objective of the study. Hence, views on the type of research approach to use are polarized among social science researchers.

Proponents of the quantitative approach contended that human behaviour in the social sciences, just as physical phenomena in the natural sciences, is quantifiable in attributes and subject to generalization that have universal applicability (Smeyers, 2001). As positivist philosophers, they hold that there are facts with objective reality that can be expressed numerically and descriptively. But the opponents (qualitative researchers), however, argue that the quantitative researchers look through a narrow lens at specified set of variables while the qualitative researchers look through a wider lens, searching for patterns of interrelationships between a previously unspecified set of concepts. They contended that the qualitative approach involves learning about the views of individuals, assessing a process over time, generating theories based on participant perspectives and obtaining detailed information about a few people or research sites (Amedahe, 2002).

Onwuegbuzie (2000) identifies myths on both sides; for example, positivists claim objectivity but they make subjective decisions (e.g., 5% level of significance to test null hypotheses); in social sciences, variables are allowed to explain as little as 2% of variance. On the qualitative side, the assertion that there are multiple contradictory valid accounts of phenomena can lead to lack of attention to or documentation for the rationale for their interpretations. Like many others, Smeyers (2001: 491; cited in Imel et al., 2002) advocates the use of integrated perspectives and combined methods, arguing that "these different kinds of investigations make it possible to do justice to the full array of educational questions and the various functions research has to fulfill." Another justification is that although mixed methods have some disadvantages, such as higher costs, time and labour intensity, etc., advantageously, they can complement other findings, expand information, overcome biases, uncover the need for further study, confirm

hypotheses, and add texture (Brewer 2001). Thus, "we need a multiplicity of voices and discourses in research", because "no single paradigm provides a fully satisfactory understanding all on its own" (Salomon 1991, cited in Garrison and Shale 1994: 25; Hultgren 1993: 33).

The question therefore, is whether there are ideal or pure situation of exclusively "qualitative" and "quantitative" data. One might use qualitative data to illustrate or clarify quantitatively derived findings; or, one could qualify demographic findings or, use some form of quantitative data to partially validate one's qualitative analysis (Strauss & Corbin, 1990).

Drawing conclusion from the above arguments, it is safer to argue for research situation that could combine the two approaches. This study had therefore combined both the qualitative and the quantitative approaches in the data collection and analysis.

3.4 Research Design

As pointed out in Kumar (1999: 74), a traditional research design is a blueprint or detailed plan for how a research study is to be completed –operationalzing variables so that they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses, and analyzing the results (Thyer, 1993: 94). The design thus indicates whether there is an intervention and what the intervention is, the nature of any comparisons to be made, the method to be used to control extraneous variables and enhance the study's interpretability, the timing and frequency of data collection, the setting in which the data collection is to take place, and the nature of communications with subjects (cited in Amedahe, 2002, 2004 & Amedahe and Gyimah, 2006).

There are many research designs that are usually employed in the field of research. But for the purpose of this study bearing in mind that it is non-interventional type, the descriptive research design (Gay, 1992; Best & Khan, 1998 and Amedahe, 2002) will be used to explore and show how vivid the phenomena are, and make critical analyses of the situation. Descriptive design deals with the conditions or relationships that exist, such as determining the nature of prevailing conditions, practices and attitudes; opinions that are held; processes that are going on; or trends that are developed. It implies accurate description of activities, objects, processes and persons is the objective (Amedahe, 2002).

The researcher preferred this design because, it has helped in interpreting the relationship among variables by giving a detailed picture of the issue at stake and focused on questions related to who, whom and how among others.

3.5 Target Population

Twumasi (2001: 19) pointed out that in considering a sampling design; the research scientist first of all determines his/her population universe. That is, he/she must indicate clearly the characteristics of the population. Polit and Hungler (1996), cited in Amedahe (2004) defined a population as the entire aggregation of cases that meet a designated set of criteria. It always comprises the entire aggregation of elements in which the researcher is interested. Accordingly, there is a distinction between the target and accessible population. The target population is the aggregate of cases about which the researcher would like to make generalizations. But the accessible population is the aggregation of cases that conform to the designated criteria that are accessible to the researcher as a pool of subjects for a study. Thus, the target population is the units for which the information is required and actually studied. This distinction means that researchers usually sample from an accessible population and hope to generalize to a target population.

In this regard, the target population for this study was made up of technical and vocational training institutions that were established and sponsored by governments (i.e. state or public institutions) as identified by the Ministry of Education in collaboration with the Technical and Vocational Education Division of the Ghana Education Service (GES) in Northern Ghana (Northern Region, Upper East Region, and Upper West Region). The study was based mainly in the regional capitals. The reason for limiting the study to technical/vocational institutions in the regional capitals of Northern Ghana was that, majority of them are located in these towns (Tamale, Bolgatanga and Wa) with the needed personnel, facilities and equipment. They are older and bigger (in size) than other technical/vocational schools in terms of students' intake enrolment rates for both males and females. Also, the fact that the schools are similar in character, the study was hoped to obtain valid and reliable results and this would tend to have a degree of the true reflection on all technical and vocational training institutions in Northern Ghana and the country as a whole. The institutions/schools which have been selected, based on proximity to the researcher were twelve in number. These include:

- Dabokpa Technical/Vocational Institute, Vitting Secondary Technical School, St. Mary's Women Vocational Training Institute and National Vocational Training Institute (all in Tamale Metropolis).
- Bolgatanga Technical Institute, Zamse Secondary Technical School, Bolgatanga Women Vocational Training Institute and Namalteng Integrated Vocational Training Centre (all in Bolgatanga Municipality).
- Wa Technical Institute, Wa Secondary Technical School, Wa Women Vocational Training Institute and National Vocational Training Institute (all in Wa Municipality).

Programmes/courses offered in these institutions include: Home Economics (Catering, Fashion Designing, Textiles, etc.), Technical Courses (Auto Vehicle Mechanics, Welding, Woodwork, Mechanical Engineering, Electrical Installation, Electronics, Plumbing, Carpentry and Joinery, Block laying and Concreting, Metalwork, Masonry, etc.), General Business (Accounting and Secretariat Options), Visual Arts (Art, Drawing, Painting and Decoration, etc.), and Agricultural Science as well as Core English, Core Mathematics, Core Science and Social Studies.

3.6 Sample and Sampling Procedures

In research, the rationale is to make generalization or to draw inferences based on samples about the parameters of the population from which the samples are taken (Yin, 1993). Thus, research is invariably conducted by means of a sample, on the basis of which generalizations applicable to the population from which the sample was obtained are reached (Osuala, 2007: 114). A sample, therefore, consists of a carefully selected subset of the units that comprise the population. Sampling is thus the process of selecting a portion of the population to represent the entire population. It enables the researcher to study a relatively small number of units in place of the target population, and obtain data that are representative of the whole target population (Amedahe, 2004: 53).

The study was conducted by using both probability (random) sampling and non-probability (purposive) sampling methods. For, in the words of Osuala (2007: 125) "a sample may involve a mixture of both probability and purposive sampling".

Different sampling techniques were used to sample the study units. Sampling was done at three levels: institutions, students, and principals and headmasters or headmistresses or their assistants in charge of academic affairs. The ages of the students and schools' authorities were between 14 and 40 years and above. Purposive samples of six technical and vocational institutions/schools were selected out of a total of twelve remarkable schools as enumerated earlier in the targeted population. This implied that, at least two of these institutions were further selected from Tamale, Bolgatanga and Wa purposively to constitute or represent the population's geographical, institutional size and programme areas (technical, vocational and business-related courses) where sample units were also selected. The reason for using purposive sampling in the view of the researcher was that, majority of these schools were found to be older and bigger than others in terms of students' intake enrolment rates for both males and females. They attract students of all sexes from all walks of life within and outside the regions. Besides, since all technical and vocational schools were similar in character, the study in these areas was hoped to obtain valid and reliable results and this would tend to have a degree of the true reflection on all technical and vocational training institutions in Northern Ghana and the country as a whole.

Students, who were the cardinal point in the study, were drawn from the six selected institutions using simple random sampling method as well as purposive sampling method for both males and females. Here, the researcher purposively gave more allocation or weight to females than males in relation to the total population of students in each of the schools. With the simple random technique as it implies, the researcher made sure that each individual student within a population of the programmes of study in each of the selected schools was given an equal chance to be selected. Here the lottery method in which a sampling frame was prepared with numbers written on papers and assigned to each student within the targeted population was used. The papers with the numbers were put in a container and asked students to pick continuously until the required numbers of respondents were recorded. In short, both the female and male students were randomly picked based on their programmes of study and areas of specialization. In other words, a random sample of 347 of both males and females were sampled proportionately to represent the population's gender, geographical background, age distribution, year and course of study. Basically, 60% (208) of respondents were females and 40% (139) were males. The main reasons of using the simple random technique and proportional allocation

were to give each study unit the opportunity to be selected and also give more opportunity to females than males to respond to issues since they were found to be the minority in each of the schools. This has been demonstrated in table 3.1. This was aimed to minimize if not completely avoid bias in the sample process.

Principals and Headmasters/headmistresses or their assistants in charge of academic affairs were purposefully sampled. Six of them were sampled out of a total of twelve heads or their assistants. In the view of the researcher, this category of interviewees chosen with the use of the purposive technique was on the basis of their positions and influence on the general students' selectivity process and setting up of admission criteria to admit students into the institutions. And if the other methods were used in the sampling process, they might have been omitted. Purposive sampling uses judgment and expertise in selecting sample members. Judgment and not chance determines the composition of the sample (Putt and Springer, 1987).

Generally, the researcher has considered both the students and the schools' authorities to be appropriate respondents for the study simply because they were believed to have a fair knowledge of the issues in relation to female participation in technical and vocational education and training. The study sample size was estimated to be 353 as indicated in table 3.1 below. It is, however, important to note that this sample size did not include trainees from women's vocational training institutes as mentioned in the target population. This was because they were found not to be mixed schools (boys and girls) for the study to measure the extent of gender disparities. Besides only females have been enrolled in these schools to offer or pursue the perceived female-oriented courses including hospitality and fashion trades mainly catering, fashion /designing and textiles. Other courses such as the technical programmes (craft engineering and building trades) were not offered in these institutions.

Table 3.1: Sample and Sampling Procedure

Categories				Sample Size			
Total (Target) Students' Population				Students			Principals, Headmasters or their Assistants
Institution	M	F	Total	M	F	Total	
Dabokpa Tech./Voc. Institute	896	542	1438	32	52	84	1
Vittin Sec./ Tech. School	782	238	1020	25	35	60	1
Bolga Tech. Institute	1042	541	1583	36	56	92	1
Zamse Sec./ Tech. School	486	234	720	18	24	42	1
Wa Tech. Institute	523	133	656	16	22	38	1
Wa Sec./ Tech. School	332	195	527	12	19	31	1
Total	4061	1883	5944	139	208	347	6
Grand Total Sample Size	**353**						

Source: Field Data, 2010; Note: 'M' = male and 'F' = female

Again, a table was derived and constructed based on research studies and literature related to practical evaluations of technical and vocational training institutions. The purpose was to find out whether there has been a progressive increase or decrease in females' intake as compared to males in both technical courses (craft engineering and building trades), general business, and hospitality and fashion trades within the three-year duration of 2007/2008 to 2009/2010 for onwards recommendations in this write-up (see Appendix C on page 126 and the results on Table 4.4, Table 4.5 and Table 4.5 respectively on page 68 – 70).

3.7 Data Sources

Data collection in the words of Gay (1992) involves all studies that are designed to either test hypotheses or answer research questions. This means that to get answers to his/her questions, the researcher must develop strategies to go to the field (Twumasi, 2001). In this light, data for the study was collected from two main sources: the primary sources in which information were gathered through interviews and questionnaires; and the secondary sources in which data were obtained from documents that contain educational issues on females' participation in technical/vocational education and training. Any other documents such as journals, magazines, edited books that contain relevant information were also gathered for analysis. Also, the internet became one of the main sources of this type of data.

3.7.1 Instruments for Data Collection

3.7.1.1 Interviews

It is a method of field investigation whereby the researcher meets his/her respondents and through the interaction he/she asks specific questions to find answers to his/her research problem. It employs verbal questioning as its principal technique of data collection, either by face-to-face situation or by phone (Kumar, 1999 and Twumasi, 2001). In this regard, an interview-schedule was designed for principals and headmasters/headmistresses or their assistants in charge of academic affairs of the selected schools on issues related to the research. This approach was intended to solicit in-depth information on the concept of female participation in technical and vocational education and training, particularly governments' policies, admissions and other issues on enrolment. This was vital because, interviews are conducted to find out from people those things we cannot directly observe, we cannot observe how people have organized the world and the meanings they attach to what goes on in the world. We have to ask people questions about those things (Fraenkel et al (2006) cited in Owusu-Agyeman, 2006).

3.7.1.2 Questionnaires

A questionnaire is a written list of questions, the answers to which are recorded by respondents. In other words, written questioning is accomplished through questionnaires, which are administered to the respondents by mail or handed to them personally by the researcher in their homes, at work, at school or any other place; they are returned to the researcher after completion. These are known as self-administered or self-completion

questionnaires (Sarantakos, 2005). In line with this, self-administered or self-completion questionnaires were administered to students personally, to seek their opinions about factors that influence females' participation in technical and vocational education and training. The items on the questionnaire were meant to seek information based on the background characteristics of the students and most importantly the research questions. The exercise was done by randomly picked trainees of both males and females proportionally, based on their programmes/courses of study to get their opinions on the issues at stake. In each school, a day was spent on administration of questionnaires ranging from the smallest school with 31 (12 boys + 19 girls) to the biggest with 92 (36 boys + 56 girls) in terms of the population and sample size as indicated in the table 3.1 above.

3.8 Data Collection Procedures

The procedures of data collection for the study were carried out in three stages. The first stage was the reconnaissance survey phase, where personal visits were made to the various selected technical/vocational training institutions in the regional capitals (Northern Ghana) as stated earlier. This was aimed at familiarizing with facts on the schools' total populations, establish linkages and rapport, and build relationships with the schools' authorities, some trainers and trainees and non-teaching staff if the need arises.

The second phase, which was the main survey, was focused on the collection of data through interview-schedules and administration of questionnaires to the principals and headmasters or headmistresses or their assistants in charge of academic affairs and students respectively. Here the researcher employed non-mail questionnaires (personally delivered to the respondents) by sending them to the prospective respondents in the various selected schools. One reason for this was that, it was made possible for the writer to explain issues to the students' respondents in the process of filling the questionnaires.

Last but not the least, the research was concluded with the in-depth survey phase in which was information gathered to deepen the understanding of some specific issues that were left out in the previous stages. In other words, supplementary information was collected from the key informants when it was necessary for onwards discussions.

3.9 Data Processing and Analysis

The data processing and analysis were divided into two parts. The first part dealt with interviews granted to principals and headmasters/headmistresses or their assistants in charge of academic affairs and other related management issues of the selected technical and vocational institutions in Northern Ghana. The second part dealt with the survey questionnaires which were administered to both males and females' trainees randomly picked for the study from the selected institutions.

Two types of data analysis were employed to examine and address the issues at stake. These were qualitative and quantitative analyses (Twumasi, 2001: 86). The data collected from the field were processed, that is, pre-coded, edited and then entered into the computer for analysis. In the data analysis, the researcher found it necessary to use descriptive statistics including frequencies and percentages in the form of tables, bar graphs and pie charts to illustrate and answer the research questions for easy understanding. Cross-tabulation was adopted in some cases to determine the relationships between some variables. The computer software that was used in the data analyses was the Statistical Product and Service Solution (SPSS). This was to support the view that "with the use of the SPSS the researcher will be able to accomplish the aims and objectives of the research in an efficient and effective manner" (Twumasi, 2001: 90).

3.10 Field Challenges

In the views of Amedahe (2004), field challenges otherwise referred to as limitations are concerned with factors that limited the results of a study, particularly factors that need to be considered regarding the findings and their uses. It was upon the basis of this that the researcher really met or encountered some challenges during the collection of data on the field. For instance, considering the vast nature of the study area (Northern Ghana), it was impossible for the researcher to cover up all technical and vocational training institutions in all the districts within the three regions of Northern Ghana. Hence, the need to restrict to only the regional capitals for a number of selected schools. Besides, there was the problem of inadequate and inconsistent records keeping on students' enrolment coupled with restriction of other schools' information in some of the selected schools. Another challenge was the inability of the researcher to effectively administer or distribute the questionnaires to all students in each of the selected schools, taken the entire population into consideration. Again, the uncooperative nature of some of the schools' heads and

teachers alike was not left out. Some of them particularly the headmaster of Zamse Secondary Technical School and the headmistress of Wa Secondary Technical School complained about the work load involved in the provision of statistics for students' enrolment for three-year duration (i.e. 2007/2008 to 2009/2010) was too involving and tiresome. Some trainers equally lamented that administering questionnaires to students during classes or lesson hours was not the best, since it disrupts the teaching process. Finally, the purposive selections of some respondents in the sample might have brought some limitations in the generalization of the findings. This generalization was applied to only individuals who responded to issues related to the research and nothing else.

CHAPTER FOUR

MAIN FINDINGS AND DISCUSSIONS OF DATA

4.1 Introduction

This chapter presents and discusses the views expressed by the key participants as the writer encountered them in the field using various methods and appropriately selected tools and techniques to elicit information from them. The chapter is divided into two parts, the first part deals with some analysis of the socio-demographic characteristics of the student respondents captured by the small surveys that were carried out in the selected TVET institutions both within the three regional capitals of Northern Ghana (the metropolis and municipalities of Tamale, Bolgatanga and Wa respectively). This is followed by the presentations and discussions of data, by first considering the views of the heads of institutions and those of the students in relation to the interviews and questionnaires granted to them respectively on issues concerning females' participation in TVET in Northern Ghana. This was done in line with the research objectives.

4.2 Socio-Demographic Characteristics of Respondents in the Survey

This part of the research was designed to obtain information on the demographic statistics of respondents in relation to gender differentiation in participation in technical and vocational education and training in Northern Ghana. The demographic information covered include, gender of respondents, age group of respondents, educational and occupational levels of parents and guardians, and number of siblings of respondents.

4.2.1 Gender Distribution of Respondent

With respect to gender as demonstrated on Table 4.1, the domination of females was as a result of a deliberate attempt made by the researcher to give more opportunity to females than males to respond to issues. This was because they were found to be the minority in relation to the total population of students in each of the schools selected for the study (see Table 3.1 on page 55).

Table 4.1: Gender Distribution of Respondent

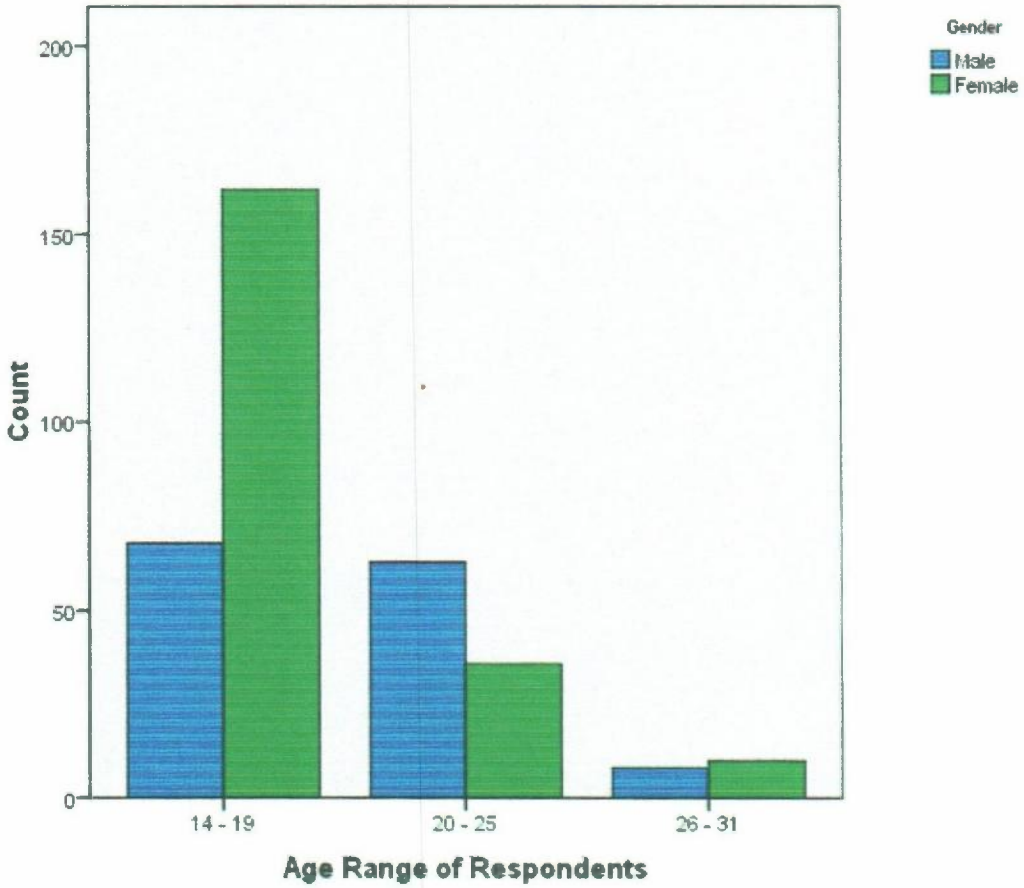
Gender	Frequency	Percent
Male	139	40.1
Female	208	59.9
Total	347	100.0

Source: Field Data, 2010

4.2.2 Age of Respondents

The age distribution of respondents by gender is presented in Figure 4.1.

Figure 4.1: Age Distribution by Gender



Source: Field Data, 2010

Age is a plausible variable on the depth of knowledge that people may have in relation to education, especially technical and vocational education and training. The ages of the respondents were classified as adolescents/teenagers (14-19 years), youth (20-25 years) and young adults (26-31 years). By this classification, it was possible to compare views and inter-institutional differences in the wealth of knowledge that each category may possess and hence establish gaps in the transmission of ideas concerning gender participation in TVET. From figure 4.1 above, it is clear that all the three categories were fairly represented both in age and across gender. It further showed that majority of the key informants who consisted of 66.3% (230) and fell within 14-19 years were described as adolescents/teenagers. This is followed by 28.5% (99) of the youth group who were within 20-25 years. The young adults made up of 5.2% (18) were within 26-31 years.

4.2.3 Educational Attainment of Parents/Guardians of Respondents

According to Yadav (2000) the International Conference on public education convened jointly by UNESCO and the International Bureau of Education in Geneva in 1962, while discussing the question of access of women to education, made the following recommendations to ministries of education of all member countries that:

- Every person, man or woman should be able to receive an education enabling him/her to develop his/her aptitude as fully as possible, playing an effective part as member or citizen of his/her community, his/her nation and the world and meet the demands of his/her special tasks of life.
- General education should be equal in value and status of that of boys and thus avoid social discrimination.

It was for these reasons that the study found it necessary to ascertain the educational status of parents and guardians of respondents since it may have an influence concerning female enrolment in school. The outlooks of the educational attainments of parents of respondents are presented on Table 4.2.

Table 4.2: Distribution of Educational Attainments of Parents of Respondents

Educational Levels	Father		Mother	
	Frequency	Percent	Frequency	Percent
No Formal Educ.	200	57.6	244	70.3
Basic Education	54	15.6	48	13.8
Secondary Education (SHS/Tec./Voc. Sch.)	37	10.7	38	11.0
Tertiary Education	56	16.1	17	4.9
Total	347	100.0	347	100.0

Source: Field Data, 2010

The above Table 4.2 has revealed two issues on the educational attainment of parents and these have been presented accordingly. One is the educational level of respondents' fathers and the other is the educational attainment of their mothers. The educational status of fathers showed the modal to be no formal education representing 57.6% (200). This was followed by 16.1% (56) of fathers who had attained certificates at the tertiary level; and closely followed were those who had basic education with a representation of 15.6% (54). Fathers who had attained education up to the secondary level were 10.7% (37).

The second issue that has also been highlighted on the same Table 4.2 was the educational attainment of mothers. From the Table, it clearly indicated that, not only a higher proportion of mothers were said to have attained no formal education, but they were also found to have attained less educational qualification at the tertiary levels (polytechnic and university/higher professions). This is because it was evidenced from Table 4.2 that as high as 70.3% (244) of mothers were found to have no formal education. It further indicated that there were only 13.8% (48) of mothers have attained education up to the basic education level; with 11.0% (38) of mothers having attained senior high school/technical and vocational training. At the tertiary level including polytechnics and universities/higher professional institutions, it was found out that only 4.9% (17) of mothers were those who have obtained certificates up to that level.

4.2.4 Occupational Distribution of Parents of Respondents

Parental occupations were equally necessary to be included in the study as pointed out in the literature review; these variables had been shown to have an influence on career choice of children (Gibson and Mitchell, 1990). In other words, the type of occupation or employment of a person can affect the perception of the wards' choice or interest and desire to offer a programme/course in school. In this connection, the main occupations or employment featured in this study are the occupations or employment that contributed most to respondents' parents and guardians' livelihood and perhaps that of the family in a year. Below are the various occupational distributions of parents and guardians of respondents on Table 4.3.

Table 4.3: Occupational Distribution of Parents/Guardians of Respondents

Category of occupations	Father		Mother	
	Frequency	Percent	Frequency	Percent
Professional & Technical	55	15.9	21	6.1
Administration & Managerial	19	5.5	2	0.6
Clerical	2	0.6	5	1.4
Sales & Services	48	13.8	214	61.7
Agriculture	176	50.7	62	17.9
Skilled manual	20	5.8	6	1.7
Unskilled manual	27	7.8	37	10.7
Total	347	100.0	347	100.0

Source: Field Data, 2010

From Table 4.3 above, the category of occupation in which fathers engaged most was skewed in favour of agriculture representing 50.7% (176). Those found in sales and services were 13.8% (48). This was followed by fathers who engaged in unskilled manual and skilled manual jobs representing 7.8% (27) and 5.8% (20) respectively. Those in the formal sector including administration and managerial were 5.5% (19) and fathers found to be engaged in clericals were 0.6% (2). It was only the professional and technical category that fathers were represented significantly by 15.9% (55).

Again, mothers of respondents were found to be engaged in varied occupations. The same Table 4.3 revealed that those in sales and services were the majority representing 61.7% (214). This was followed by agriculture 17.9% (62), unskilled manual 10.7% (37) and

6.1% (21) of mothers were found in professional and technical occupations respectively. The remaining occupations engaged in by mothers were skilled manual 1.7% (6), clerical 1.4% (5) and administration and managerial 0.6% (2).

Taking a holistical view on the occupational distribution of both parents and guardians from Table 4.3 above, it can be concluded that majority of parents were found in the informal sector (agriculture, sales and services, skilled manual and unskilled manual representing 64.3%) with few of them in the formal sector (professional and technical, administration and managerial and clerical representing 35.7%). It is obvious that many mothers if not all, were engaged mainly in petty trading, food processing and marketing of food crops. This gives an impression that most of the key informants especially the females might have been influenced by their mothers into patronizing female-oriented courses instead of the male-oriented courses.

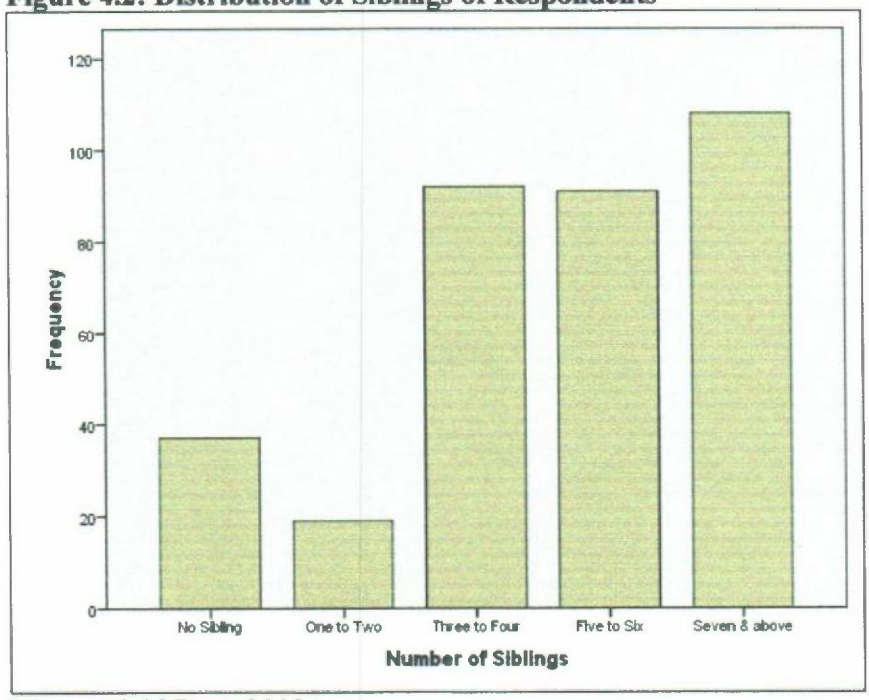
Besides, the assumption is also that perhaps the lack of formal education, training and acquisition of skills by parents and guardians as captured in the educational levels might have made majority of them to remain in the agricultural sector. Hence because women lack education, training and skills, the majority of them in Ghana tend not to be able to improve their opportunities and, therefore, they remain in low skilled, low status and low paid jobs including agriculture and trade (Awumbila 2001; Lloyd and Gage-Brandon 1994; Manuh 1993). This in the long run may turn to have financial implications on the overall education of wards, particularly females' participation in TVET. This explains why ISIS Women's International Information and Communication Service (1991:177) has observed that "in many societies in West Africa, the monetary return on parents and guardians' investment in their daughter's education will be enjoyed by her spouse, not the family that sacrificed and faced the derision of friends and neighbours to send her to school. It is for this reason that some parents and guardians prefer to give their female children in marriage in return for dowry and financial support for the education of males".

4.2.5 Distribution of Siblings of Respondents

The number of siblings of a person could have an impact on the type of education and its quality he/she benefits. By logic, parents who have a small family size could afford to meet the basic needs of their children including the kind of education, perhaps due to the savings and investments made towards improving their standard of living. On the other

hand, a large family size could also have an adverse effect on an individual as well as his/her siblings. This is because the economic situation of the parents and guardians might have worsened due to low levels of incomes relatively to the number of children they have, and their educational and occupational levels. It is for these reasons that the study sought to find out from the key informants the number of siblings of each of them. Figure 4.2 shows the responses.

Figure 4.2: Distribution of Siblings of Respondents



Source: Field Data, 2010

From Figure 4.2, the study found out that 31.1% (108) respondents confirmed that they had more than seven siblings. This was followed by those who had three to four siblings 26.5% (92) and five to six siblings 26.2% (91) respectively. Only 10.7% (37) of them said they had no sibling and those who had one to two siblings were 5.5% (19). It is obvious from the respondents that majority of their parents had given birth to not less than seven children. Even those who had as many as five to six children including those with three to four were still at the higher side compared to those with one to two. This could have an adverse effect on some of the respondents as well as their siblings. For instance, it was found out that a large proportion of parents and guardians were found mainly with low educational attainments as well as in the informal sector (see Table 4.2 and Table 4.3 on pages 69 and 70) respectively. This economic situation of parents and guardians might have worsened due to low levels of incomes relatively to the number of children they

have, hence the possible reasons for explaining the gender disparities or low participation of females in TVET in Northern Ghana. To back this, one of the female participants was quoted to have said that "Even the pocket money our parents usually gave us for the term is not enough left alone buying materials for our practical work. The problem I encounter currently is money. When it comes to the practical aspect, money is always my problem".

4.3 State of Female Enrolment in TVET Institutions in Northern Ghana

This section looks at the state of female enrolment in TVET institutions in Northern Ghana. As one of the research objectives, the questionnaires were designed to gather data on gender enrolment from the schools' authorities and also elicit individual opinions from them and the students as well on issues relating to female participation in TVET.

4.3.1 Enrolment Statistics of Males and Females' Students in the Various Programmes

The main concern here was to find out the enrolment statistics of both male and female students from the identified TVET institutions. The statistics indicate the enrolment rates for males against females for the current first, second and third years of the selected schools. These statistics were presented by using three tables (Table 4.4, Table 4.5 and Table 4.6; representing Northern Region, Upper East Region and Upper West Region respectively).

Table 4.4: Distribution of Students enrolled into the various Programmes by Sex and Year Groups in Northern Region

Year/ Class	2009/2010 (First years)		2008/2009 (Second years)		2007/2008 (Third years)	
Sex/ Programme	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Catering	20	85	14	80	4	77
Fashion/Designing	17	85	10	76	6	65
Auto Mechanics	73	5	65	1	52	1
Mech. Engineering	42	3	36	1	23	0
Electricals	50	0	54	0	54	0
Electronics	51	2	41	2	32	0
Joinery/Carpentry	38	2	32	0	30	0
Blocklaying/ Concreting	88	5	65	1	61	0
Metalwork	30	2	27	0	27	0
Woodwork	33	4	27	3	24	0
Welding	-	-	-	-	-	-
Technical Drawing	34	4	31	3	25	3
Visual Arts (Painting/Decorat.)	34	4	33	3	23	4
Accounting	44	30	48	29	38	23
Secretariat	13	46	10	49	5	36
Others	72	20	65	18	59	17

Source: Field Data, 2010

Table 4.5: Distribution of Students enrolled into the various Programmes by Sex and Year Groups in Upper East Region

Year/ Class	2009/2010 (First years)		2008/2009 (Second years)		2007/2008 (Third years)	
Sex/ Programme	Male	Female	Male	Female	Male	Female
Catering	7	96	5	90	3	79
Fashion/Designing	4	72	1	65	3	62
Auto Mechanics	70	2	58	1	53	0
Mech. Engineering	45	1	38	1	35	0
Electricals	82	5	68	7	61	4
Electronics	-	-	-	-	-	-
Joinery/Carpentry	48	0	45	0	43	0
Block laying/ Concreting	50	2	47	0	46	1
Metalwork	30	0	26	3	25	0
Woodwork	16	1	12	1	14	0
Welding	39	0	38	0	34	0
Technical Drawing	-	-	-	-	-	-
Visual Arts (Painting/Decorat.)	31	6	26	5	23	3
Accounting	50	26	48	24	43	23
Secretariat	14	45	12	46	8	43
Others	74	26	68	25	64	20

Source: Field Data, 2010

Table 4.6: Distribution of Students enrolled into the various Programmes by Sex and Year Groups in Upper West Region

Year/ Class	2009/2010 (First years)		2008/2009 (Second years)		2007/2008 (Third years)	
Sex/ Programme	Male	Female	Male	Female	Male	Female
Catering	8	71	4	65	1	63
Fashion/Designing	5	65	3	46	4	43
Auto Mechanics	30	0	25	0	20	0
Mech. Engineering	30	0	24	0	17	0
Electricals	77	3	69	3	64	0
Electronics	20	1	17	0	19	0
Joinery/Carpentry	25	0	27	0	26	1
Block laying/ Concreting	54	1	51	2	44	1
Metalwork	8	0	5	1	4	2
Woodwork	10	4	5	2	3	0
Welding	10	0	0	0	0	0
Technical Drawing	-	-	-	-	-	-
Visual Arts (Painting/Decorat.)	14	7	4	3	7	4
Accounting	-	-	-	-	-	-
Secretariat	-	-	-	-	-	-
Others	48	32	46	29	43	23

Source: Field Data, 2010

The information gathered from the respective vice-principals and assistant headmasters or headmistresses in charge of academic affairs revealed that total enrolment by institution for the study ranged from 527 in Wa Senior High Technical School to 1583 in Bolgatanga Technical Institute. In the same period, no institution recorded a higher female enrolment than that of males. It was also noted that two institutions had the lowest total enrolments (527 and 656 respectively). In all the institutions in the sample frame, females took about one-third of the training places (see Table 3.1).

For the three-year period under review (2009/2010, 2008/2009 and 2007/2008) as the statistics indicated on Table 4.4, Table 4.5 and Table 4.6 for the selected institutions in the three northern regions respectively, female enrolment statistics in technical programmes/courses ranged from zero percent (0%) to sixteen percent (16%). The rest of the training places were taken up by their male counterparts, confirming that TVET in Northern Ghana is male-dominated. For instance, data on programmes/courses' enrolment showed that females were highly concentrated only in catering (94%), fashion and designing (92%) and secretariat studies (83%) when one considers the percentage margins of both sexes (male and female students) enrolled within the three-year period in all the regions. This was the case particularly with Bolgatanga Technical Institute and Dabokpa Technical and Vocational Institute which showed a relatively higher female enrolment in these areas. While male trainees registered even distribution in male-oriented courses, the few females in such courses were concentrated only in three courses, namely; painting and decoration, technical drawing and woodwork (close to 32%). This has confirmed that in Northern Ghana, where gender disparities in TVET is still widening with both females and males yet to penetrate the male-dominated and female-oriented courses offered by technical/vocational training institutions respectively.

4.3.1.1 Views of School Authorities on the Trend of Female Enrolment in TVET

On the trend of female enrolment into TVET programmes, the interviewees were of the view that government policies have been the main strategies towards achieving the goals of TVET including female participation. Accordingly, the Educational Reform Review of 2004 has instituted an apex management body called "Council of Technical and Vocational Education and Training" (COTVET) which sought to streamline the mechanisms of delivery, evaluation, assessment and certification and removing the constraints that have prevented the attainment of the highest levels of qualification, achievement and productivity in the TVET sector. This notwithstanding, it was indicated by a respondent that there had not been any single policy mainly targeting the admission of females into TVET institutions. He reiterated that the issue of women in technical/vocational education has been a long standing problem. But to avert the trend, the Technical and Vocational Education Division within the GES has now created a women's desk at the headquarters, regional and district levels for addressing peculiar issues of women in TVET. Other measures such as the introduction of core subjects (Integrated Science, English Language, Mathematics and Social Studies) and other

electives which hitherto did not exist in technical and vocational training institutions for students who want to move further into tertiary institutions after completion, have also made it possible for a lot of females to show interest and the desire to be enrolled into TVET institutions.

Another factor that has changed the trend of female enrolment in TVET institutions has to do with the Computerized Schools' Selection and Placement System (CSSPS). In the views of the key informants, CSSPS is the main instrument of selecting students into Technical Institutes, Secondary/Technical Schools, Vocational Schools /Training Centres and other post-basic education training institutions for technical and vocational programmes authorized by the Ghana Education Service (GES). This has contributed significantly to increasing female enrolment.

As to whether there have been an increase or a decrease in female enrolment in technical courses over the years in the selected TVET schools, there were different opinions held by the interviewees. Three institutions including Dabokpa Vocational/Technical Institute, Vittin Secondary/Technical School and Bolgatanga Technical Institute were said to have witnessed an increase in female enrolment into technical programmes. In the case of Dabokpa Vocational/Technical Institute, the statistics indicated that no female was enrolled in any of the technical programmes in 2007/2008 academic year. Only four of them were admitted in 2008/2009 but increased to 10 in 2009/2010. In the same period, Vitting Sec/Tech. School witnessed an increase from 11, 16 and 26 females respectively. Bolgatanga Technical Institute recorded an increase of six, 10 and 13 in 2007/2008, 2008/2009 and 2009/2010 academic year respectively. Key informants' views on the reasons for this were that technical courses did not only offer job opportunities for men but also to women who offered these courses. It was also indicated that some of the females believe they can establish their own workshops for self-employment, and others think they can serve as trainers of trainees after getting a certificate.

On the contrary, Zamse Senior High/Technical School, Wa Technical Institute and Wa Senior High/Technical School recorded a decrease, to the extent that Zamse Senior High/Technical School had not even admitted a single female student in any of the technical programmes offered in the school in 2009/2010. It was only three females who were enrolled in 2007/2008 but reduced to one female in the 2008/2009 academic year.

Wa Technical Institute recorded 10 females in 2007/2008, six females in 2008/2009 and five females in 2009/2010. Wa Secondary/Technical School witnessed a decrease from nine females, six females and to only three females in 2007/2008, 2008/2009 and 2009/2010 respectively. In the views of the key informants, the reasons for the decrease in female enrolment reflected on the increasing negative perceptions held by society including parents on women's participation in technical/vocational education and training. For instance, a respondent was of the view that some people have the belief that only technical courses were offered in these institutions and that females who offered these courses had limited employment opportunities. Another issue that has to do with the perception was the fact that technical programmes/courses were male-oriented coupled with science subjects like Physics, Technical Drawing, Mathematics and the like (perceived to be difficult by some females).

Basically, the views of the school authorities were that the purpose of technical and vocational education and training was to equip young men and women with the technical and professional skills needed for the rapid socio-economic development of the country. The emphasis is on training people for self-employment, one interviewee added. Therefore, it was important for both males and females to seek admissions into TVET institutions for their programmes.

4.3.1.2 Views of Students on the Trend of Female Enrolment

Three issues were raised to seek the opinions of respondents on whether female enrolment has increased or decreased, and the reasons that accounted for the increase or decrease since they were enrolled into their respective institutions. The following were the views expressed by the respondents.

Table 4.7: Views of Respondents on the Increase or Decrease of Female Enrolment

Response	Gender Respondents		Total	Percent
	Male	Female		
Increased	108	162	270	77.8
Decreased	31	46	77	22.2
Total	139	208	347	100.0

Source: Field Data, 2010

Inferring from Table 4.7, it was found that out of 40.1% (139) males' respondents, 31.1% (108) were of the view that female enrolment had increased over the years in the schools while 9.0% (31) said female enrolment had decreased. Similarly, 59.9% (208) of the female respondents in which 46.7% (162) were the majority affirmed that there had been an increased since they enrolled in the schools. On the contrary, 13.3% (46) of the female respondents indicated that their respective schools had witnessed a decrease in female enrolment. In summary, it is obvious that out of the 347 key informants, 77.8% (270) comprising 108 males and 162 females confirmed that there was an increase in female enrolment in their respective schools. However, 31 males and 46 females representing 22.2% (77) indicated that there was a decrease in female enrolment. Clearly, almost 60% of the female participants and 40% of the male participants were optimistic that there has been an increase generally in female enrolments in recent times. Nevertheless, there has been an insignificant increase in female interest and desire to be enrolled in the male-dominated courses.

The second issue was the views of key informants on the reasons that accounted for the increase in female enrolment. These opinions were detailed out on Table 4.8.

Table 4.8: Reasons for the Increase in Female Enrolment in TVET Institutions

Reasons for the increase in female enrolment	Respondents by Gender					
	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Offer employment opportunities.	45	38.8	71	61.2	116	33.4
Introduction of core subjects and other courses.	12	20.7	46	79.3	58	16.7
Academic achievements and acquisition of skills.	24	34.8	45	65.2	69	19.9
Hotel or Boarding facilities.	15	78.9	4	2.1	19	5.5
Motivation by parents, peers and role models.	26	52.0	24	4.8	50	14.4
Availability of female-oriented courses.	17	48.6	18	5.1	35	10.1
Total	139	40.1	208	5.9	347	100.0

Source: Field Data, 2010

The results of the field survey presented on Table 4.8 showed that 33.4% (116) out of the 347 respondents indicated offering employment opportunities as the major cause of the increase in female enrolment in the schools. From this number, 45 representing 40.5% were males and 71 representing 59.5% were females. Only 69 respondents representing 34.8% (24) males and 65.2% (45) females indicated academic achievements and acquisition of skills as a reason that has facilitated the increase in female enrolment in the institution. The introduction of core subjects and other courses was the reason stated by 58 key informants. Out of this, 20.7% (12) were males and 79.3% (46) were females. This was followed by motivation by parents, peers and role models 14.4% (50) and availability of female-oriented courses 10.1% (35), in that order. The provision of hotel or boarding facilities was observed as the least reason with 19 (5.5%) respondents. Consequently, both males 38.8% and females 61.2% representing 116 key informants have concluded that getting immediate employment opportunities after completion, has been a major motivational factor for the increase in female enrolment in TVET institutions in recent

times in Northern Ghana. This has supported Yadav (2000: 69, 350) view that "there is a great need of combining general and vocational education to provide a wide scope for employment and economic independence of women. Therefore, the involvement of girls in vocational and technical programmes is extremely vital. Efforts must be made to encourage girls to learn new emerging skills and technologies. Vocationalization of education and technical-cum-professional education helps women to get outside the restricted world which they are living in at present".

The final issue in this section was respondents' views on the factors that contributed to the decline of female enrolment in TVET. Table 4.9 shows the opinions of the key informants.

Table 4.9: Reasons that contributed to the Decline of Female Enrolment in TVET Institutions

Reasons for the decrease of female enrolment	Respondents by Gender					
	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Lack of job opportunities for women who offered technical courses.	7	29.2	17	70.8	24	6.9
Tech./Voc. courses are expensive and difficult.	13	18.3	58	16.7	71	20.4
No Scholarship or sponsorship programs for females.	1	2.6	38	94.4	39	11.2
Teenage pregnancy or Early marriages.	1	2.0	50	98.0	51	14.7
Lack of interest in tech. courses/ encouragement by parents and peers	24	35.3	44	64.7	68	19.6
Stereotyping	93	26.8	1	2.6	94	27.1
Total	139	40.1	208	59.9	347	100.0

Source: Field Data, 2010

From Table 4.9, the study revealed that out of the total of 347 respondents, ninety-four representing 93 (98.9%) males and one (1.1%) females indicated stereotyping as a factor

which had contributed in reducing females' enrolment in TVET. There were 71 respondents representing 13 (18.3%) males and 58 (16.7%) females who indicated that technical/vocational courses were expensive and difficult as one of the reasons. Only 68 key informants, that is, 24 (35.3%) males and 44 (64.7%) females said lack of interest on the part of females in technical courses and lack of encouragement by parents and peers was also a cause. Only 51 of both males one (2.0%) and females 50 (98.0%) confirmed teenage pregnancy or early marriages as a reason for the decline. The rest of the reasons were mentioned as no scholarship/sponsorship programmes by 39 respondents representing one male (2.6%) and females 38 (97.4%) and lack of job opportunities for women who offered technical courses was identified by 24 respondents, made up of seven (29.%) males and 17 (70.8%) females. Clearly, the contention of male participants that stereotyping was the main factor causing the decline of females' enrolment in TVET is in line with Macrae et al (1996) view, cited in Pilcher and Whelehan (2004) that a stereotype can be thought of as a cognitive method or procedure, used by our mind in order to simply explain the complex barrage of information it experiences. On the contrary, majority of the female participants rather indicated that technical/vocational courses were expensive and difficult as the major cause retarding female enrolment in TVET. This has confirmed Philip Foster's (1965) view that vocational schools were expensive and they produce students who are no more employable than those from academic schools (Atchoarena, 1993).

4.4 Parental Motivation for Enrolling Females into TVET Institutions

The focus here was to elicit information from both the heads of institutions and students on the factors motivating people particularly parents to send their females to technical and vocational education and training.

4.4.1 Opinions of School Authorities on Factors Motivating Parents to send Females into TVET

In the views of the interviewees, not only does technical and vocational education and training offer programmes for the acquisition of skills to the individual, but it also help to provide the job market with skilled manpower. Two of the key informants further indicated that the factors were numerous but limited their argument to the training and employment opportunities of females' trainees. On the issue of training, it was highlighted that vocational and technical education laid a foundation for the exposure of females to

scientific and technological trends, thus giving skills and ideas to enable them cope with change. Besides, it laid a foundation for the understanding of technical skills and aptitudes, as a basis for further training including other higher learning institutions.

With regard to the employment, respondents were of the view that TVET makes room for transferring a level of skill to students including the female trainees for them to be able to do a specific job so as to make them more employable. Others include; acquiring specialist skills and knowledge toward a particular trade, equipping individuals with skills for securing a livelihood as well as providing a variety of marketable skills to trainees. These opinions held by the key informants were found to have agreed with Abban and Quarshie (2007) that Technical, vocational education and training programmes were meant to develop the skills and expertise of students towards the world of work, and that of the human capital approach to education (Fitzsimons, 1997 & 1994; Senanu, 1996; Harbison and Myers, 1964).

4.4.2 Opinions of Students on Factors Motivating Parents to send Females into TVET

In the words of Yadav (2000: 201), "to improve any society, the development of both male and female individuals should be on equal footing. Swami Vivekananda had said decades back that, "as a bird cannot fly on one wing, no society can make progress unless its women too, join men in all activities". Stress on the education of the female-child should be more but the scenario is just the reverse. It is the male-child who is more privileged and gets a better chance in every aspect". It was for this reason that the study sought to gather information from respondents on the reasons why parents sent their daughters to technical and vocational education and training institutions just like the boys. The views of respondents have been presented on Table 4.10.

Table 4.10: Views of Students on Factors Motivating Parents to send Girls to TVET Institutions

Factors motivating parents' decision to send girls into TVET	Respondents		
	Frequency	Percent	Cumulative Percent
Provide knowledge and practical skills	57	16.4	16.4
Provide immediate employment to trainees	108	31.1	47.6
Provide basis for other higher learning institutions	54	15.6	63.1
Self-employment opportunities for trainees	118	34.0	97.1
Allow shorter period of training as compared to the purely academic type	10	2.9	100.0
Total	347	100.0	

Source: Field Data, 2010

With reference to Table 4.10, it was revealed that out of the total of 347 key informants, 118 (34.0%) stated self-employment opportunities for trainees as the main factor influencing parents to send their female wards to technical and vocational education and training institutions. Only 108 (31.1%) respondents indicated providing immediate employment to trainees particularly in the public and private sectors of the economy as one of the factors. But 57 (16.4%) of the respondents mentioned the provision of knowledge and acquisition of practical skills as a factor, and 54 (15.6%) trainees stated that TVET institutions provide the basis for students who intend pursuing further studies in other higher learning institutions. There were 10 (2.9%) of the key informants who indicated that TVET institutions make room for trainees to be trained to acquire certificates within a short period of time compared to the purely academic type of education which takes a longer period.

4.5 Challenges that confront TVET Institutions in Enrolling Females

It was once observed by James Udoh (1995: 92) that in a patriarchal society like Ethiopia, "women are considered inferior to men. Women's activities within the home involve cooking, raising children, and taking care of the household. These are laborious and routine. They are not as highly remunerative and prestigious as men's activities". Adu (1999) also observed that society's concept of womanhood in Ghana is negative. The reasons behind such perceptions about women can be found in customs, traditions and

beliefs which have, over the years; contributed in keeping women under subjugation and to make them feel generally inferior to men.

Perhaps it was as a result of these reasons that the 1961 Five-Year Accelerated Development Plan established that there should be equal opportunities for both men and women in education (Graham, 1976). Guided by this plan, the Ministry of Education and the Ghana Education Service (GES) in the on-going education reforms had revised the curriculum in such a way that provision was made for both boys and girls to study technical and vocational subjects at the various levels beginning from the Junior Secondary School (JSS) level regardless of social class, age or ethnicity. With this provision, many individuals including females seek education particularly in technical and vocational education and training to enhance their social status in society and also contribute meaningfully to the development of the country. Unfortunately, this has become a mirage in recent times due to some challenges beyond imagination. The major challenges facing the various TVET institutions in enrolling females into their programmes were aimed at identifying from both the school authorities and the students the likely hindrances to effective collaboration between the various institutions, governments, parents and other stakeholders.

4.5.1 Views on the Challenges facing Female Enrolment in TVET by Heads of Institutions

The key informants indicated that funding was a major problem in enrolling females into technical and vocational education and training programmes/courses. The interviewees explained that the problems facing their outfit to enroll females into many of the TVET programmes were insufficient funding, lack of equipment or their obsolescence, lack of inputs such as books, instructional aids and materials. Financing TVET in Ghana is almost entirely on the shoulders of the government. Only a smaller percentage of funding is provided by churches, NGOs and private individuals. TVET, which can be two or three times higher than general education because of smaller classes; the high cost of facilities, equipment, instructional materials; and the need to pay higher salaries for competent instructors. Poorly financed vocational secondary education contributes less to worker earnings than general secondary education. When these costs are not met, training outcomes are inadequate and employability of graduates is reduced.

Another issue was the perception that technical/vocational programmes/courses are male-oriented coupled with science subjects like Physics, Technical Drawing, and Mathematics and so on (perceived to be difficult by some females).

Added to this was the low average of girls at the Basic Education Certificate Examination (BECE) levels, lack of interest by parents of the problem of job placement upon completion, the absence of adequate planning at the various sectors of the economy that dealt with manpower issues particularly the absence of existing information on the number of professionals needed within certain industries and most importantly the lack of role models in the field of work. For instance, it was clearly stated by two respondents that not only does society frowned on women who pursued technical/vocational programmes, but parents and the females themselves think the courses are very expensive to pursue. This is because they involve high cost of equipment and tools for practical and other related works and have few parents and their female wards patronizing these programmes.

4.5.2 Students' Views on the Challenges of Female Enrolment in TVET

Three issues were presented to key informants for their responses and these are discussed accordingly. First were the difficulties with the skills involved in the chosen vocation or programme of respondents. The study found out that out of the 347 respondents, 184 (53.0%) indicated that they encounter difficulties with the skills involved in their respective chosen vocation. The remaining 163 (47.0%) participants were of the view that they do not have any difficulties in pursuing the programme currently. The outlook of the 53% key informants on the difficulties they encounter is depicted by Table 4.11.

Table 4.11: Difficulties encountered by respondents in the chosen programme

Difficulties Encountered by Respondents	Gender				Total Frequency
	Male		Female		
	Frequency	Percent	Frequency	Percent	
Lack of tools and equipment for practical lessons (work)	37	48.7	39	51.3	76
Inadequate qualified teaching personnel (teachers)	6	25.0	18	75.0	24
The habit of school authorities or parents choosing courses for trainees	8	34.8	15	65.2	23
Difficulties in technical courses and science subjects in school	6	35.3	17	64.7	17
No funds or money to purchase ingredients/ materials for practical work	4	9.1	40	90.9	44
Total	61	33.2	123	66.8	184

Source: Field Data, 2010

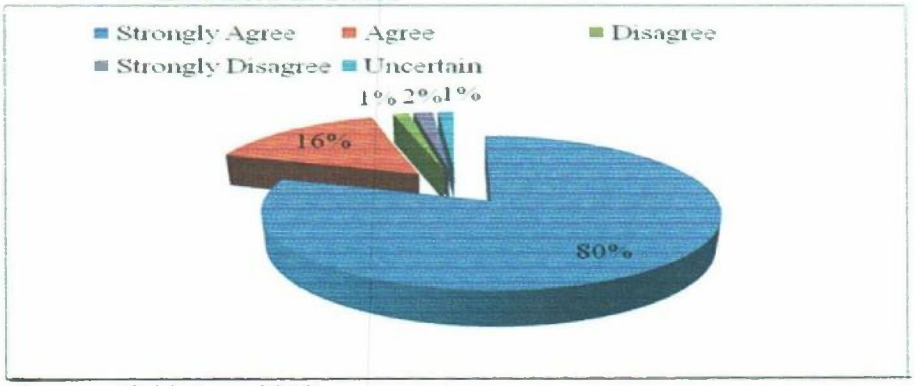
It could be seen from Table 4.11 that out of the 184 respondents, 61 (33.2%) were males and 123 (66.8%) were females. In all, 76 comprising 37 (48.7%) males and 39 (51.3%) females indicated lack of tools and equipment for practical lessons as one of the major challenges. Only 44 representing four (9.1%) males and 40 (90.9%) females mentioned lack of funds to purchase materials or ingredients for practical work as a problem. There were 24 respondents representing six (25.0%) males and 18 (75.0%) females who were of the view that inadequate qualified teaching personnel have been one of the problems facing them. But 23 made up of eight (34.8%) males and 15 (65.2%) females indicated the habit of school authorities or parents choosing programmes or courses without considering their interest as another hindrance. Those who stated difficulties in technical courses and science subjects in school were 17 key informants. These were made up of six (35.3%) males and 11 (64.7%) females.

To support and illustrate the above views further, one of the female participants was quoted to have said that "even the pocket money our parents usually gave us for the term is not enough left alone buying materials for our practical work. The problem I encounter currently is money. When it comes to the practical aspect, money is always my problem".

Similarly, female respondent from Wa Technical Institute, has this to say "I have not thought of doing technical drawing, painting and decoration and the like, but here I am in a technical school pursuing these courses which are difficult to learn during and after classes".

The second issue still on the challenges facing females' access and participation in TVET has to do with a statement made by the researcher for key informants to give their opinions. Respondents were to indicate the extent to which they have agreed, or disagreed with the statement that Government should provide financial assistance to females in technical and vocational education and training. The information on figure 4.3 presents the opinions of respondents.

Figure 4.3: Government should give financial assistance to females interested in TVET



Source: Field Data, 2010

From the field surveys, Figure 4.3 has revealed that 80% of the total of 347 respondents strongly supported the view that government has the sole responsibility to provide financial assistance to females in technical and vocational education and training. Only 16% were those who agreed with the statement and 1.4% disagreed. While 1.7% strongly disagreed with the statement, 1.4% were uncertain as to whether government should provide financial assistance to females interested in TVET. Clearly, majority of the key informants were those who supported strongly that it was the responsibility of government to provide financial support to females wishing to be enrolled into TVET programmes. This supports the human capital theorists that education was an investment of current time and money for future pay (Fitzsimons, 1997 & 1994; Senanu, 1996; Harbison and Myers, 1964).

Finally, the issue of whether there were disadvantages to women working in male-dominated occupations was also presented to key informants to seek their views. The study found out that 46.9% (163) out of the 347 respondents were of the view that there were disadvantages of females working in male-dominated occupations, while the remaining 184 representing 53.0% affirmed that it was not true there were disadvantages for females working in jobs perceived to be the reserve for men. Table 4.12 presents the views of the key informants who felt it was disadvantageous for females to work in male-dominated areas.

Table 4.12: Disadvantages of women working in male-dominated areas

Disadvantages	Frequency	Percent	Cumulative Percent
Sex discrimination against females in these areas by men	30	8.6	8.6
Women cannot marry and give birth	21	6.1	14.7
Pregnant women cannot work with some equipment at the workplace	29	8.4	23.1
Lack of physical strength by women to work in these areas	34	9.8	32.9
Women risk facing sexual harassment at workplaces	49	14.1	47.0
Total	163	47.0	

Source: Field Data, 2010

The results of the field surveys presented in Table 4.12 had revealed that 14.1% (49) out of the 163 respondents said that women stand the chance of facing sexual harassment at workplaces. Only 9.8% (34) of the respondents stated lack of physical strength by women to work in these areas as a challenge, and 8.6% (30) said sex discrimination against females in areas claimed to be the reserve for men was common. There were 29 respondents representing 8.6% who were of the view that women's trainees who are pregnant while working in male-dominated areas with the use of heavy equipment and tools may stand the risk of getting complications, and 6.1% (21) of the respondents indicated that it was disadvantageous for females to work in male-dominated jobs because such women cannot marry and give birth.

This suggests that a section of society has actually operationalised the perceptions about women working in male-oriented occupations. This is because available literature has it

that Miss Theresa Aggrey-Fynn (an auto-body sprayer) was quoted to have said that "I was harassed by male-counterparts whom I worked with; especially at the time I had not married. Another problem, which threatened my future career initially, was discrimination by clients because of my gender. They felt a woman could not be a good sprayer" (Dolphyne, 2005: 45). Besides, two females' respondents were found to have made the following remarks as stated in Box 1:

Box 1: Views of Two Females' Informants in relation to the Challenges

A female student (Bolgatanga Technical Institute) was quoted to have said that: "the low or decrease of female enrolment in technical courses is as a result of the perception that we ladies are not strong like boys, and more to the point we ladies have no right to control a man or boy in this institution. If we even stood for leadership positions, the boys always took such positions. So they are those ruling us in this institution".

Another female student (Vittin Secondary/Technical School) also indicated: "Besides our peer groups who have been teasing us for pursuing technical course, one of our teachers introduced a name to our course, that is, "Dead course". This has turned out to be a nickname given to us by most of our colleagues".

Source: Field Data, 2010

4.6 Steps taken towards Increasing Female Enrolment Rates in TVET

This research objective was meant to identify the various measures that have been taken, or could be employed to minimize the negative perception held by society concerning females' access and participation in technical and vocational education and training programmes.

4.6.1 Opinions of Heads of Institutions on Steps taken towards Increasing Female Enrolment

In the face of the challenges towards increasing female enrolment rates in technical and vocational education and training, all the school authorities interviewed said the Ministry of Education in collaboration with the Ghana Education Service (GES) and the individual heads of TVET institutions have come to the realization that there was the need to put some steps in place to encourage females to go in for technical and vocational programmes. Two of the key informants stated that it was for this reason that the GES in

1987 introduced the Science Clinics for Girls as part of a wider initiative on Science, Technology and Mathematics Education for girls. Respondents said the initiative was meant to address the problem of low female enrolment in science and technical studies, particularly to find out more about the factors that hold back their participation at school, and in the home by way of getting solutions to them. They said even though the Clinics, which started in 1987, bring together 200-300 secondary /technical school girls from all over Ghana and other countries in Africa each year, much has not been achieved. Hence to complement this effort, the school authorities have always made their facilities available to be used for programmes by civil society organizations and other stakeholders targeting girls' education, training and other poverty alleviation measures.

Accordingly, the guidance and counseling services at the first and second cycles are also on-going, and women role models in TVET are usually invited to give a talk during Parents Teachers Association (PTA) meetings. It was added that even with the collaboration of government and other NGOs on gender issues, workshops and seminars, and radio discussions are usually organized for specialists to educate parents/guardians, potential female students and the general public concerning the importance of technical/vocational training programmes for girls.

Besides, with the integration of general (core) subjects into the technical and vocational curriculum, firm linkages have been established throughout the educational system to allow females equally compete with their male counterparts at all levels of learning including TVET institutions.

4.6.2 Students' Opinions on Measures to erase the Negative Perception about Females' Access and Participation in TVET

The views of students on the steps that could be taken to erase the negative perception about females' access and participation in TVET are detailed on Table 4.13.

Table 4.13: Students' Views on Steps that could be taken to erase the negative perception about Females in TVET

Measures	Respondents		
	Frequency	Percent	Cumulative Percent
Public education on the merits of TVET to all sexes must be intensified	126	36.3	36.3
Government, Civil Society Organizations, etc. should support females in TVET financially	57	16.4	52.7
Employment opportunities should be created for females who undertook TVET programmes	57	16.4	69.1
Guidance and Counseling programmes should be intensified at the basic levels	38	11.0	80.1
Women role models in TVET should make themselves known in society	34	9.8	89.9
Parents should not dictate the choice of programmes for their wards, especially females to pursue in school	28	8.1	89.0
Respondents who were uncertain	7	2.0	100
Total	347	100.0	

Source: Field Data, 2010

Inferring from Table 4.13, it was revealed that out of the 347 respondents from the field surveys, 36.3% (126) indicated the need to intensify public education on the merits of TVET to all sexes particularly females. This in the view of a respondent could be done at public forum including occasions such as durbars, festivals, and many others. while 16.4% (57) of the respondents said it was important for government, civil society organizations or other philanthropists to give females financial support in TVET, 16.4% (57) of the respondents were of the view that employment opportunities should be created for females who have undertaken training in TVET programmes by government in both the public and private sectors. Only 11.0% (38) respondents were of the opinion that guidance and counseling educational programmes must be intensified towards female participation starting from the basic levels. Besides, 34 of the key informants representing 9.8% identified the role of female role models in technical education as a way forward. There were 8.1% (28) of the respondents who said parents and guardians should not dictate for their wards, particularly females in the choice of programmes they should pursue in school, and 2.0% (7) were uncertain as to what can be done to erase the negative perception about females' participation in TVET.

Perhaps it is as a result of these measures that made White, Cox and Cooper (1992: 139 - 140) to state that "If a mentor is available to act as a role model, it is likely that women's aspiration levels and self-efficacy regarding traditionally male work will be raised (Barclay, 1982; Hackett and Betz, 1981)". Similarly, taking these steps would help to minimize a situation where in many countries around the world, young people do not have a choice, they are told by their parents or government officials what jobs they will do (Dale, 2006; White et al, 1992).

CHAPTER FIVE

SUMMARY, CONLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research process, the research outcomes and conclusions on the findings and recommendations for further research policy and practice on female participation in TVET in Northern Ghana. In other words, it relates the basic findings to the research objectives and questions and establishes whether these research objectives and questions have been met. It then provides an overview of the research outcomes and conclusions.

5.2 Summary

This study examined the factors that influence gender disparities in technical and vocational education and training, favouring males against low participation of females in Northern Ghana and the country as a whole. It considered the ways in which both males and females are enrolled into the training institutions towards acquiring skills' training opportunities for individual and national sustainable developments. In this regard, socio-demographic characteristics of key informants showed that female participation in technical and vocational education and training in the region were not just a gender issue but issues of age of respondents, educational and occupational levels of parents and guardians as well as the number of siblings of respondents. It indicated that participation in technical and vocational education was an issue of gender, age, educational and occupational levels of parents and guardians and number of siblings in Northern Ghana. Gender, however, was the most remarkable dimension, where participation in TVET was a "male-dominated" affair. Women participation in TVET was minimal; as such government, opinion leaders and other stakeholders were called upon to talk on gender issues with the seriousness it deserves in that regard (Awumbila et al, 2000; Oppong et al, 2006; Ghana Human Development Report, 2000). Hence, 59.9% of respondents were females. This was to give females more opportunity than males to respond to issues since they were found to be minority in each of the selected TVET institutions. This was aimed at minimizing if not completely avoiding bias in the sample process. Even though there were no significant differences in opinions expressed between males and females' students on the topic.

5.3 Methodology

This research was carried out in multiple locations across six selected TVET institutions in Northern Ghana, that is, in the Tamale Metropolis, Bolgatanga and Wa Municipalities. The study sample size was 353 comprising both heads of schools and students. Hence distributions of respondents were made up of 347 students (139 male and 208 female students) and six principals and headmasters/mistresses or their assistant heads (refer to Table 3.1). It was intended to investigate the state of female enrolment in technical and vocational training institutions in terms of gender disparities among the different TVET institutions and the extent to which parents or individuals have taken advantage of sending their wards especially the females into these training institutions. The research was premised on the human capital framework and constructivism framework of technical and vocational education. Even though the institutions were similar in character, different or mixed methodological techniques were used to sample the study units –institutions, students and schools' authorities (principals and headmasters or mistresses or their assistants in charge of academic affairs). In this direction, both probability (random) and non-probability (purposive) sampling methods were used. Interviews were used to collect qualitative data from the schools' authorities whereas questionnaires were employed to conduct the surveys which generated most of the quantitative aspects of the data from trainees and used accordingly. Descriptive statistics including frequencies and percentages in the form of tables, bar graphs and pie charts were used in the data analysis.

5.4 Key Findings

The following are the findings from the study on the topic: "Females' Participation in Technical and Vocational Education and Training in Northern Ghana: Prospects and Challenges".

5.4.1 Enrolment Statistics of Males and Females' Students in the Various Programmes

The study revealed that total enrolment by institution ranged from 527 in Wa Senior High Technical School to 1583 in Bolgatanga Technical Institute. In the same period, no institution recorded a higher female enrolment than that of males. In all the institutions, females took about one-third of the training places. It came out that female enrolment in technical programmes ranged from zero percent to 16 percent. The rest of the training places were taken by their male counterparts. While males registered even distribution in

male-oriented courses, few females were found in such courses like painting and decoration, technical drawing and woodwork (close to 32%). On the contrary, data on other programmes/courses, enrolment showed that females were highly concentrated in catering (94%), fashion and designing (92%) and secretariat studies (83%). This has confirmed that in Northern Ghana, gender disparities in TVET was still widening with females and males yet to penetrate the male-dominated and female-oriented areas respectively.

Again, it was noted that government policies towards females' participation in formal education including TVET have contributed greatly to enhancing females' enrolments. Accordingly, the Educational Reform Review of 2004 has instituted an apex management body called "Council of Technical and Vocational Education and Training" (COTVET) which sought to streamline the bottlenecks that hamper the attainment of the highest levels of qualification, achievement and productivity, not excluding female participation in the TVET sector. This notwithstanding, the issue of a single policy mainly targeting the admission of females into TVET institutions has been a long standing problem. To avert the trend, however, the Technical and Vocational Education Division within GES has now created a women's deck at the headquarters, regional and district levels for addressing peculiar issues of women in TVET.

Also, the introduction of core subjects (Science, English Language, Mathematics and Social Studies) and other electives which hitherto did not exist in technical and vocational training institutions for students who want to move further into tertiary institutions after completion, have made it possible for a lot of females to show interest and the desire to be enrolled into TVET institutions.

Additionally, the trend of female enrolment into TVET institutions has changed in favour of both the males and females because of the institutionalization of the Computerized School Selection and Placement System (CSSPS). It is the main instrument of selecting all potential students into TVET institutions authorized by GES. Therefore, it has been contributing significantly in the selection and placement of females into VOTEC institutions.

Furthermore, on the issue of whether the selected TVET institutions have witnessed an increase or decrease in female enrolment in technical courses over the years (2007/2008 to 2009/2010), the research found out that three institutions had witnessed an increase in female enrolment in technical programmes. For instance, in the case of Dabokpa Voc/Tech. Institute, statistics indicated that no female was enrolled in any of the technical programmes in 2007/2008 academic year. Only four of them were admitted in 2008/2009 but increased to 10 in 2009/2010. In the same period, Vittin Sec/Tech. School witnessed an increase from 11, 16 to 26 females. Bolgatanga Technical Institute recorded an increase of six, 10 and 13 in 2007/2008, 2008/2009 and 2009/2010 academic year respectively.

The reasons that accounted for the increase in female enrolment over the years included the following:

- Technical courses did not only offer job opportunities for men but also to women who offered these courses.
- Females believe that they can establish their own workshops for self-employment, and others think they can serve as trainers of trainees after getting a certificate.

Other reasons were:

- Introduction of core subjects and other electives.
- Acquisition of skills and academic achievements of the school.
- Provision of hotel or boarding facilities by the school.
- Motivation by parents, peers and female role models.
- Availability of female-oriented courses.

The remaining three schools, on the contrary, recorded a decrease, to the extent that Zamse Senior High/Technical School had not even admitted a single female student in any of the technical programmes offered in the school in 2009/2010. It was only three females who were enrolled in 2007/2008 but reduced to one female in 2008/2009 academic. Wa Technical Institute recorded 10 females in 2007/2008, six females in 2008/2009 and five females in 2009/2010. Wa Sec/Tech. School witnessed a decrease from nine females, through six females to only three females in 2007/2008, 2008/2009 and 2009/2010 respectively.

The reasons given for the decrease in female enrolment reflected on:

- The increasing negative perceptions held by society including parents on women's participation in technical/vocational education and training. For instance, a key informant was captured to have explained that "some people have the belief that only the academically weak go into technical courses and that only male-dominated courses are offered in these institutions and those females who offered these courses have limited employment opportunities".
- Another issue that has to do with the perception is the fact that technical programmes/courses were male-oriented coupled with science subjects like Physics, Technical Drawing, Mathematics and the like (perceived to be difficult by females).

Besides, other factors that have contributed to the decrease in female enrolment were:

- Lack of job opportunities for women who offered technical courses.
- Technical/Vocational courses are expensive and difficult.
- No Scholarship or sponsorship programmes for females in TVET.
- Lack of encouragement and interest in technical courses by females, parents and peers.
- Stereotyping

5.4.2 Factors Motivating Parents to send their Female Wards to TVET Institutions

It has been observed that technical and vocational education and training programmes are meant to develop the skills and expertise of students towards the world of work (Abban and Quarshie, 2007). This is in line with the human capital approach to education (Fitzsimons, 1997 & 1994; Senanu, 1996; Harbison and Myers, 1964). Throughout the writer's interactions with the key participants in the field, it became clear that there were many factors motivating individuals and parents to send their girls into VOTEC training institutions. It was discovered that not only does TVET institutions offer programmes for the acquisition of skills by individual trainees, but they also help to provide the job market with skilled manpower. In summary, the training and employment opportunities for female trainees were the centre of discussion. On the issue of training, it was highlighted that vocational and technical education had laid a foundation for the exposure of females to scientific and technological trends, thus giving skills and ideas to enable them cope with change. Besides, it laid a foundation for the understanding of technical skills and

aptitudes, as a basis for further training including other higher learning institutions. With regard to the employment opportunities, it was explained to mean that TVET makes room for transferring a level of skill to the female students for them to be more employable. Others include acquiring specialist skills and knowledge toward a particular trade, equipping individuals with skills for securing a livelihood as well as providing a variety of marketable skills to trainees.

Available literature also has it that "education is the means through which a society perpetuates and spreads its own culture. From the point of view of the individual, education is the process of 'bringing out' or 'developing' an individual's natural abilities and interests. It is thus a basic right of every human being (ISIS International Women Information and Communication Service, 1991: 175)". Hence Dr. Kwegyir Aggrey, who hailed from Anomabo in the Central Region of Ghana view, was that "if you educate a man you educate an individual, but if you educate a woman, you educate a nation" (Adu, 1999: 18). Dr. Aggrey's reason for encouraging girls to go to school was simply to make them acquire knowledge and skills in order to become productive citizens. It was for this reason that "the involvement of girls in technical and vocational programmes is extremely vital. Efforts should be made to encourage girls to learn new emerging skills and technologies" (Yadav, 2000: 350). It is in line with this that it was realized from the study that females were sent to TVET institutions by individuals and parents for the following reasons: TVET

- Provides knowledge and practical skills to students
- Provides basis for immediate employment opportunities
- Provides basis for other higher learning institutions
- Creates opportunities to trainees for self-employment
- Facilitates shorter period of training as compared to the purely academic type

Perhaps these were the reasons that motivated Miss Theresa Aggrey-Fynn to undergo (through a World Bank sponsored) training in auto-body spraying at the Kumasi Technical Institute. and she has since opened a workshop where she now works at Suame Magazine, Kumasi as auto-sprayer (Dolphyne, 2005: 45). Similarly, Cynthia after going through an apprenticeship training programme as a sprayer at Godland Motors, Alajo, in 1999 and worked with a Chinese company known as Cartech Motors for three years as a sprayer before joining her current company. As it was put: "For Cynthia, there is no work which is

the preserve of men, as she is depicted in a picture busily doing what she loves best – spraying cars" (Reporter-Augustina Tawiah, 2009: 11). These have supported the view that special efforts were needed to reach the marginalized groups, bring gender-balanced programmes that would attract women into male-dominated occupations or mainstream (UNESCO, 1999).

5.4.3 Challenges that confront TVET Institutions in Enrolling Females

It was once observed by Udoh James (1995) that in a patriarchal society like Ethiopia, women are considered inferior to men. Women's activities within the home involve cooking, raising children, and taking care of the household. These are laborious and routine. They are not as highly remunerative and prestigious as men's activities, and they do not involve major decision making (Biaria, 1985). In this regard, the 1961 Five-Year Accelerated Development Plan established that there should be equal opportunities for both men and women in education (Graham, 1976). Guided by this plan, the Ministry of Education and the GES in the on-going education reforms have revised the curriculum in such a way that provision was made for both boys and girls to study technical and vocational subjects at the various levels beginning from the Junior Secondary School (JSS) level regardless of social class, age or ethnicity. Unfortunately, there were many challenges which have impacted on the enrolment of females into technical and vocational education and training. The following challenges were identified from the field surveys by the researcher, and proved to have confirmed the aim of the research objective. These challenges include:

First, funding has been a major problem facing female enrolment into TVET programmes/courses. In other words, the problems facing the outfit of TVET institutions to enroll females into many of their programmes were insufficient funding coupled with lack of equipment or their obsolescence, lack of inputs such as books, instructional aids and materials. For example, a female informant lamented that "even the pocket money our parents usually give us for the term is not enough, left alone buying materials for our practical work. The problem I encounter currently with the course is money. When it comes to the practical aspect, money is always my problem".

Second, there is the perception that technical/vocational programmes/courses are male-oriented coupled with science subjects like Physics, Technical Drawing, and Mathematics

and so on (perceived to be difficult by females). In a similar development, Umar Aminatu, one of the field participants from Wa Technical Institute, was quoted to have said that "I have not thought of doing technical drawing, painting and decoration and the like, but here I am in a technical school pursuing these courses which are difficult learning during and after classes".

Third, there has been low average of girls at the Basic Education Certificate Examination (BECE) levels. Even though recent reports in educational trends (Tsikata, 2001) shown that there have been some improvements in attainment for girls as well; it appears that is not the case. In both absolute and relative terms, female enrolment has always lagged behind than that of males at all levels of the educational ladder. With enrolment rates at 46.2% for girls at primary school as against 53.8% for boys in 1995, these disparities also increased at the junior secondary school (JSS), senior secondary school (SSS) and peaked at tertiary level where female enrolment was 25% by 1995. Attrition rates are higher among females than males and the ratio increased with progression up the educational ladder. While 43% of the females drop out after class one, the percentage for males was 10% with progression from Primary six to JSS form one. While 65% of the original cohort of the males entered, only 56% of females did. At the end of JSS, 57% of males who started were still in school as against only 44% of females who still remained. This was demonstrated by 2000 Population and Housing Census on the school enrolment of males against females as shown on Table 5.1.

Table 5.1: School Enrolment

Level	Male (%)	Female (%)
Pre –School	46	54
Primary School	51	48.4
Junior Secondary School	53	47
Senior High/Technical School	56	44
Tertiary	59.4	40.6

Source: Data base, 2000 Population and Housing Census

Fourth, there is lack of interest by parents/guardians of the problem of job placement upon completion, and the absence of adequate planning at the various sectors of the economy that dealt with manpower issues particularly the absence of existing information on the number of professionals needed within certain industries. This supports the view that "in many countries around the world, young people do not have a choice; they are told by

their parents or government officials what jobs they will do. For instance, parents and peers often view work based learning as second best when compared to an academic route" (Dale, 2006: 7; White et al, 1992: 98).

Fifth, lack of female role models coupled with inadequate qualified teaching personnel in the field of TVET is yet another challenge facing female enrolment in TVET. Perhaps it was as a result of this that White et al (1992: 139 - 140) observed that "If a mentor is available to act as a role model, it is likely that women's aspiration levels and self-efficacy regarding traditionally male work will be raised (Barclay, 1982; Hackett and Betz, 1981)".

5.4.4 Steps taken towards Increasing Female Enrolment Rates in TVET

To encourage females' access and participation in technical and vocational education and training programmes, it came out clearly from the study that the Ministry of Education in collaboration with the GES has introduced Science Clinics for Girls as part of a wider initiative on Science, Technology and Mathematics Education for girls. Even though the Clinics, which started in 1987, brought together 200-300 secondary /technical school girls from all over Ghana and other countries in Africa each year, much has not been achieved. Hence to complement this effort, the school authorities of TVET always make their facilities available to be used for programmes organized by civil society organizations and other stakeholders targeting girls' education, training and other poverty alleviation measures.

Accordingly, guidance and counseling services at the first and second cycles are also on-going in this regard. Also, invitations are usually extended to women role models in TVET with gainful employment to give a talk to students, more importantly females, during Parents Teachers Association (PTA) meetings as well as availing themselves on radio discussions to educate parents or guardians, potential female students and the general public concerning the importance of technical/vocational training programmes for girls were other steps put in place.

Besides, with the integration of general (core) subjects into the technical and vocational curriculum, firm linkages have been established throughout the educational system to allow females to compete with their male counterparts.

However, there has been a call on the need to intensify public education on the merits of TVET to all sexes particularly females. This could be done at public forums including occasions such as durbars, festivals, and many others. It was also important for government, civil society organizations or other philanthropists to support females interested in TVET with funds. Again, employment opportunities should be created for females who have undertaken training in TVET programmes by government in both the public and private sectors. Finally, parents and guardians should avoid dictating for their wards, particularly females in the choice of programmes they should pursue in school.

5.4.5 Research Outcomes of Female Participation in TVET institutions in Northern Ghana

From the forgone discussions, it implied that although government white paper on the report of the education review committee of 2004 has indicated that, "government would continue to equip the technical and vocational training institutions to make them effective in their own rights to emphasis skills training that are needed to run and build the nation" (Report on the Development of Education in Ghana, September, 2008: 10-11), not much have been done to increase access and participation rate among prospective female students into TVET. Women do not have equal access of formal education at any level from primary school through to higher education. In most African countries including Ghana, enrolment and participation in educational institutions particularly in TVET institutions is characterized by gender disparities. For instance, statistics on vocational and technical training from 2002 – 2004 indicate that 8,361 people were trained. Of these 6,159 (74%) were males while 2,202 (26%) were females. In 2006, there were 7,211 trainees consisting of 5,530 (77%) males and 1,685 (23%) females (Ghana Human Development Report, 2007: 32). The number of female trainees enrolled in elementary, secondary, and tertiary education is lower than the number of boys (Awumbila, 2000). Many girls and women drop-out before they complete their elementary and secondary schooling. Those who stay pursue vocations traditionally required by society as women's; these include nursing, home economics, and secretariat skills (Udoh James, 1995: 92; Yadav, 2000: 267).

Besides, traditional customs and beliefs in some parts of the world are changing (often rapidly) due to the impact of socio-economic and development processes such as the increase in diversification of knowledge and skills acquisition vis-à-vis the job market.

This notwithstanding, some people who have become involved in modern economic sectors still have varying degrees in maintaining certain socio-cultural beliefs and practices about female participation in TVET in the country, particularly in Northern Ghana.

It has been observed that policies towards female participation in TVET were faced with some challenges including negative socio-cultural perceptions about females which are often more sustainable than those based on TVET opportunities. The recognition of technical programmes as well as occupations perceived to be for men only has greatly contributed to the problem of empowering women for development. No doubt in Northern Ghana, labour surveys have shown that women constitute over half of the labour force and they dominate in the rural areas (Ghana Statistical Service, 2007). Accordingly, the category of employment opportunities available is skewed in favour of the men, and since women lack education, training and skills, the majority of them in Northern Ghana tend not to be able to improve their fortunes and opportunities and, therefore, they remain in low skilled, low status and low paid jobs including agriculture and trade (Awumbila 2001; Lloyd and Gage-Brandon 1994; Manuh 1993).

All these need to be re-organized and energized toward the inclusion of women in all sectors of the economy among the people of Northern Ghana if not the country as a whole. Hence, it might be more useful or productive to consider other alternative ways toward female enrolment and participation in TVET. Under the circumstances, it is important female participation in TVET programmes in Northern Ghana develop awareness campaigns which illustrate the link between females and technical and vocational education and training. For, in the words of Yadav (2000: 272), "to empower women, there should be increased access of women to vocational, technical and professional education and to the existing and emergent technologies. The choice of disciplines offered to women at all levels in all types of technical education should be in keeping with the objective of bringing about women's equality. The identification of some skills and occupation as "suitable" or "relevant" to women should no longer dictate the choice of subjects. The selection of subjects should be based on the aptitude of the individual and the employment potential. Adequate counseling services should be made available to all the students".

5.4.6 Conclusion

The study concludes with UNESCO (1999: 16 - 17) publication entitled Science and Technology in Africa: Science, Technical and Vocational Education for Girls in Africa: an imperative for the future that "TVET should be a multi-domain concern, requiring collaborative and integrated approaches. TVET programmes should be designed as comprehensive and inclusive systems, accommodating the needs of all learners and accessible to all. Special efforts were needed to reach marginalized groups and programmes should be designed to facilitate entry into the mainstream. TVET programmes needed to be gender-balanced, attracting women into previously male-dominated occupations. TVET is an integral component of lifelong learning and as such plays a crucial role in helping individuals and countries to achieve a culture of peace, environmentally-sound sustainable development, social cohesion and international citizenship".

In this connection, the summary intends to re-visit the problem that was investigated, the methodology used and the findings arrived at. First and foremost the underpinning problem that necessitated this research was the issue of low female participation in technical and vocational education and training institutions in Ghana. In other words, questions have been, and are still raised as to what prospects and challenges (factors) influence gender disparities in technical and vocational education and training. In this problem, it is assumed that if the society was unbiased, both males and females would equally go for training.

Drawing concluding from the literature, the study revealed that there were few females who have access and participation in TVET. It ascertained that there were gender disparities not only in socio-economic and political life in Northern Ghana and the country as a whole, but also in education including technical and vocational education and training institutions. For instance, training statistics of vocational and technical training from 2002 – 2004 in Ghana indicated that 8,361 people were trained. Of these 6,159 (74%) were males while 2,202 (26%) were females. In 2006, there were 7,211 trainees consisting of 5,530 (77%) males and 1,685 (23%) females. Also, a recent research conducted in Ghana proves that women's enrolment is about zero % in male-dominated areas. It has been revealed that "in the secondary technical schools, which emphasize technical courses like auto mechanics, refrigeration, electronics, applied electricity, building construction and

metal work, there are even fewer female students" (Ghana's HDR, 2000: 74). This calls for government intervention to ensure that public apprenticeship programmes are genderised. Promoting equal access to skills training is important but this must be matched by training which is socially and economically viable and relevant. The practice has been to provide training that may not lead to gainful employment because, in many cases, the training perpetuates low skills, obsolete technologies, traditional, and usually non-remunerative trades and job stereotypes (Ghana Human Development Report, 2007:32).

The research questions were responded to, data collected, analyzed and duly presented. This eventually met the objectives of the study intoto. The research questions that were asked to meet the research objectives included: What is the current state of female enrolment in technical and vocational institutions in Northern Ghana? What factors influence the decision of parents to send their female wards to technical and vocational schools? What are the prospects of technical and vocational education and training for females? What challenges confront technical and vocational education and training institutions in enrolling girls? Are there steps towards increasing female enrolment rates in the face of the challenges? These questions have helped to confirm the problem statement: "the issue of low female participation in technical and vocational education and training institutions in Ghana. In other words, questions have been, and are still raised as to what prospects and challenges (factors) influence gender disparities in technical and vocational education and training". No doubt it came out clearly from the study that there are prospects and challenges of female participation in TVET in Northern Ghana and the country as a whole. These prospects and challenges of female access and participation in TVET have been highlighted below.

Clearly, the investigation on female participation in technical and vocational education and training institutions in Northern Ghana has yielded information for planning purposes. This is because the situation has been quite discouraging with most institutions being male-dominated. The challenges that have confronted female access and participation in TVET are quite enormous. Gender disparities and sex stereotyping in course admissions were quite evident, with girls concentrating on traditional female areas that have to do with catering, fashion designing and secretarial work. Besides, it was revealed from the study that there have been perceptions and beliefs among people that only the academically weak go into technical courses. It was also alleged that only male-dominated

courses are offered in these institutions and females who offered these courses have limited employment opportunities. Another issue that has to do with the perception is the fact that technical programmes/courses were male-oriented coupled with science subjects like Physics, Technical Drawing, Mathematics and the like (perceived to be difficult by females).

Other challenges that have contributed to the decrease in female enrolment into TVET programmes in Northern Ghana and the country as a whole were enumerated as follows: that ; technical/vocational courses are expensive and difficult. In other words, funding has been a major problem facing female enrolment into TVET programmes/courses.; there were no scholarship or sponsorship programmes for females who showed interest in TVET, lack of encouragement and interest in technical courses by female themselves, parents and peers has been one of the challenges. Also, lack of female role models coupled with inadequate qualified teaching personnel in the field of TVET was yet another challenge facing female enrolment in TVET.

This notwithstanding, the study found that there have been prospects for both males and females who chose to pursue programmes/courses at the TVET levels. This has resulted in attracting few females into vocational and technical programmes for future advancement and employment opportunities. A case in point is that there were women who have broken through the social barriers concerning the participation in TVET to occupy prominent places in the socio-economic and political life in the country and beyond. Women now are occupying positions in the public service and undertaking careers which were previously regarded as the preserve for men. For example, Adu (1999: 18 - 20) in her book: "Women and Human Development" did mention the first woman Trotro Driver who is Sweet Mother at Adenta, the first woman entrepreneur who manufactured canned fruits drinks, beverages, etc. is Dr. (Mrs.) Esther Ocloo of Nkulenu industries, and the first young women Miner to go to the pit (underground) was Ms. Comfort Amissah at Tarkwa Goldfields.

This is an indication that there have been lots of prospects for female access and participation in TVET. In this regard, the following prospects of TVET for people, particularly females pursuing technical and vocational programmes/courses found from the study were: First, providing the basis for immediate employment opportunities.

Technical courses did not only offer job opportunities for men but also to women who offered these courses. Females believe that they can establish their own workshops for self-employment, and others think they can serve as trainers of trainees after getting a certificate. Second, it provides the basis for other higher learning institutions. For instance, the curriculum for TVET at the Intermediate Craft level as well as the Advance Craft and Technician levels and the general subjects have the tendency to give the student a sound background in general education so that those who have the ability may proceed to the highest possible level of learning. This explained why subjects are now common across all programmes in the TVET institutions in Ghana. These included 4 core subjects and 3 or 4 electives. The Core Science, Core Mathematics, Core English Language and Social Studies and the other related elective subjects including Technical courses (Auto Vehicle Mechanics, Welding, Woodwork, Mechanical Engineering, Technical Drawing, Craft Theory and Craft Practice, etc.) and Liberal Studies or General Business –Accounting and Secretariat Options (Bediako, 2004). Other prospects of female participation in TVET include: the provision of knowledge and practical skills to students and trainees have the opportunity to pursue courses within a shorter period of training as compared to the purely academic type.

The findings have shown that skills' training is playing and will continue to play a vital and essential role in the growth of the informal sector in the 21st century. Informal sector labour market expects potential employees to have essential work skills. Those who do not have these skills will be seriously disadvantaged. It is suggested that policy makers in post-school training institutions place skill-training needs, especially for females, at the top of their funding list. For, it was once said by Pandit Jawaharlal Nehru that "to awaken the people, it is women who must be awakened; once she is on the move, the family moves, the village moves and the nation moves" (Yadav, 2000: 264).

5.4.7 Recommendations

In the views of (Kumekpor, 1999; Bacho, 2001), the essence of every research is to contribute to knowledge, policy and practice as well as offering suggestions for future investigations into the subject studied on the basis of the data and the conclusions reached. It is for this reason that this chapter ends the write up (research) with specific policy recommendations for stemming females' participation in technical and vocational education and training institutions in Northern Ghana: prospects and challenges. The

suggestions are designed to enable policy-makers (Government, Technical and Vocational Education Division of Ghana Education Service), researchers, other stakeholders and the administrators of TVET institutions in Northern Ghana to take action on the plight of females' participation in technical education in the process of national development.

The institutions involved need to consider broadening their range of courses. There are marketable courses available that would increase the participation of girls in TVET. There is also a need to introduce an admission policy apart from the current existing policies that would encourage female participation in TVET. Such a policy should include setting aside a fixed number of training places for girls especially in male-dominated courses. In such a case, females equally need to empower themselves. Unless they themselves become conscious of their oppression, show initiative and seize the opportunities, it would not be possible to change their status.

5.4.7.1 Females who have Undergone TVET should be absorbed into the Various Industries

Well structured opportunities should be given to female students who have undergone training in technical and vocational courses to explore the world of work through excursions, practical attachments, and follow-ups. In this regard, the already existing women's desks should be improved upon. There should be a well-established offices in all TVET institutions through which regular contacts with the industries can be established and maintained. These offices should be manned by well trained placement officers. Their offices should be furnished with sound, accurate and current information about what goes on in the job markets. Onward transmission of their data to and from the schools' administration will enable the school to train the students to meet the manpower requirements of the various industries.

5.4.7.2 Continuous Sensitization Programmes on TVET should be Organized at the First and Second Cycle Levels

The attempt to boost formal education including TVET in the country should continue at all levels – schools, individuals, households, communities, regional and national. The increase basic school enrolment including the enrolment of girls should be sustained and improved upon to replicate the same enrolment rates in higher TVET institutions. Individuals, households and groups should be made to appreciate the importance of TVET

and knowledge and skills acquisition in national development. This will give females an exposure on the various programmes offered in these institutions, which could be beneficial to them.

5.4.7.3 Admission Policies in Male-Dominated Courses should be made to favour Females

There is the need to establish quota system for females in technical courses at TVET institution levels. Conscious efforts should be made to empower females, and to encourage them to go into male-oriented courses. Societies and communities should be oriented to partner females in training programmers' which are perceived to be the reserve for men. This will help eliminate all forms and barriers of exclusion against women. Unfriendly and unhelpful cultural practices which undermine and impede the potential of women should be abolished. Again, Governments must find an economic policy that would encourage financial institutions to give financial support to needy females in TVET.

5.4.7.4 There should be Appropriate Linkages between VOTEC Institutions and Industries

If the links between TVET system and industry could be stronger, educators will know and provide the needed knowledge, skills and attitudes which will suit the needs of the industries, thereby making TVET more relevant. It is for this reason the study recommends that there should be appropriate linkages between the various TVET institutions and the industries to foster attachment programmes and career placement that would give equal opportunities to both males and females. For instance, industrial attachments should form an integral part of the curriculum for students who participate in these courses. Besides, education programmes should be developed and implemented to sensitize the public about existing negative perceptions and attitudes given to females' participation in TVET male-dominated courses.

5.4.7.5 TVET Institutions should be Equipped with Adequate Materials, Tools and Equipment

In many of the VOTEC institutions in Ghana, facilities and equipment are very limited. Where such material, tools and equipment exist at all, they are either insufficient or obsolete. All these factors against the backdrop contribute to the poor teaching and learning outcomes. It is therefore imperative for government to have a second look at the budgetary allocation towards financing TVET. In addition, beneficiary firms and

organizations of the trainees should help in sharing the cost of training more equitably perhaps with the provision of facilities to the various technical and vocational training institutions. Curricula, teaching/learning materials, tools and equipment should be made to be free from negative aspects of stereotyped images of males and females.

5.4.7.6 More Resource Centers should be built for Refresher Courses and Practical Lessons for both instructors and students

The situation in which students went through the training programmes for the required period and passed out with little and irrelevant skill because the impacts at their learning places were either not enough to build them up or throughout the training, should be something of the past. This development is not only peculiar to the students but the trainers as well. Within the training programmes and refresher courses for trainers in TVET disciplines, guidance and counselors, curriculum developers and programme planners, a component should be built in to emphasize the need for greater female participation.

5.4.7.7 There should be Proactive National Policies toward the Funding of TVET for Skills Development across broad Spectrum Pre-Tertiary Education

National policies for skills development both in the formal and informal employment sectors should be a focus of attempts to develop and integrate human capital. Government's efforts should be geared toward providing avenues for skill and talent development particularly in the informal sector by making funds available. There should policies that would provide the support of donor partners and agencies as well as private individuals and NGOs toward the financing of TVET and female participation in general. TVET schools that provide short-term training to school drop-outs and other operators in the informal economy should be increased, coordinated, sustained and supported with funds. In this direction, there should be adequate budgetary provision apart from the current government position, for sustained recurrent and capital funding should be a major element in the functions of the National Co-ordinating Committee of TVET. An industrial training fund should be established to get industry and commerce to supplement government's efforts. To supplement, as far as possible, government funds by sharing the cost of technical and vocational education and training with those organizations that directly benefit from it.

5.4.7.8 Parents, Guardians and the General Public should be enlightened on the Merits of TVET Programmes

Education on the need for parents and guardians to encourage their wards particularly the females to pursuing courses of their interest and desire including technical programmes should be encouraged. For instance, there are a lot of females, parents and guardians who are not aware of the training opportunities in technical and vocational fields. Majority of these people are ignorant of the value of TVET and therefore many girls are not sufficiently motivated to go in VOTEC courses like their male counterparts. Cultural practices such as forced marriages, betrothal of young school going girls, favouring boys over girls in formal education including TVET and requiring girls to do most of the chores in the homes as well as trade or female-oriented courses should be addressed.

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Appendices

This section contains sets of data collection instruments used for the research work. They are made up of interview-schedule for the selected schools' authorities of TVET in Northern Ghana as well as questionnaires which were completed by a sample of students.

Appendix A

Interview Schedule for Principals and Headmasters or Headmistresses or their Assistants in Charge of Academic Affairs

Dear Interviewee (Headmaster/mistress or Assistant),

This interview schedule is aimed at soliciting your opinion on the above topic. Your participation in the survey is very important and completely voluntary. It is a survey towards the award of a Master of Philosophy Degree in Development Management. Kindly be assured of your confidentiality in the responses you give. It would take about 30 minutes to complete, and I would be grateful if we could go through the various questions and answer them accordingly.

Name:.....

Position:.....

Institution:.....

Date:..... Time:.....

Gender: 01 = Male [ ] 02 = Female [ ]

Status of Institution: 01 = Public [ ] 02 = Private [ ]

Others.....

Structure: 01 = Girls only [ ] 02 = Boys only [ ] 03 = Mixed or Co-educational [ ]

Section A

This part of Interview covers the Prospects and Challenges of Vocational and Technical Education to Women Accessibility in Northern Ghana and the country as a whole.

A1. Have there been government policies toward technical and vocational education?

A2. If yes, give examples of these policies.....

A3. Are any of these policies concerning the admission of female students?

If yes, describe the policy.....

If no, explain.....

A4. How are students enrolled (admitted) into the school? Indicate the mode of selection

A5. Are there laid down basic entry requirements for students to be admitted into the school? If yes, are these requirements applicable to both males and females and why?

A6. Do they choose the courses/programmes of study by themselves or it is the school that selects for them?.....

A7. Have female enrolment rates increase, decrease or uncertain in technical courses over the years in this institution? 01 = Increase [ ] 02 = Decrease [ ]

A8. Give reasons for your answer by first, indicating the current enrolment statistics (2010) according to classes in the table below:

Class/Year	Male Enrolment	Female Enrolment	Reasons for change in Female Enrolment
1 (2009/2010)			
2 (2008/2009)			
3 (2007/2008)			
Others			

Source: Author's Construct, 2010

A9. Have there been reasons influencing parents to send their girls to technical and vocational training institutions? 01 = Yes [ ] 02 = No [ ]

A10. If yes, state these reasons;.....

If no, give reasons;.....

A11. Are there sponsorship programmes for female students?

A12. Do you have guidance and counseling services for students?

A13. At what stage do you provide these services?

A14. How often do you offer these services to students?

A15. What is the number of staff involved in the teaching of technical subjects (courses)?

A16. How many are females (women)?

A17. Mention the prospects or factors that motivate women to go into technical and vocational education in this part of the country:.....

Appendix B

Questionnaires for Students

This questionnaire is aimed at soliciting your opinion on the above topic. Your participation in the survey is very important and completely voluntary. It is a survey towards the award of a Master of Philosophy (M.Phil) Degree in Development Management. Kindly be assured of your confidentiality in the responses you give.

Please, it takes just a few minutes to fill in the questionnaire and the researcher is anxiously looking for a very high response rate.

Please tick [√] the boxes or circle (the no.) as appropriate to your preferred response. For items without choice, write down your own response in the space provided.

Section A

Demographic Information

Name:.....

Institution:.....

Date:..... Time:.....

B1. Gender: 01 = Male [ ] 02 = Female [ ]

B2. Age Range of Respondents: 01 = 14 – 19 years [ ] 02 = 20 – 25 years [ ]
03 = 26 – 31 years [ ]

B3. 01=Educational Level of Father:..... 02 = Occupation of Father:.....
03=Educational Level of Mother:..... 04 = Occupation of Mother:.....
05=Educational Level of Guardian:..... 06 = Occupation of Guardian:.....
07 = Number of Siblings:.....

Section B

Students' Enrolment Issues

B4. In your opinion, has female enrolment in this school/institution increased or decreased since you were admitted? 01 = Increased [ ] 02 = Decreased [ ]

B5. If increased, what reasons accounted for that?.....

.....

.....

If decreased, give reasons for your answer:.....

.....

.....

B6. Is female intake (enrolment) in the various courses same as compared to the male counterparts in the school? 01 = Yes [ ] 02 = No [ ]

B7. Have you ever benefitted from guidance and counseling services towards your choice of programmes/courses before? 01 = Yes [ ] 02 = No [ ]

B8. Who was/were the providers of these services? 01 = Headmaster/headmistress [ ] 02 = Assistant headmaster/headmistress [ ] 03 = Form master/form mistress [ ] 04 = Teachers [ ] 05 = School Guidance and Counseling Coordinator [ ] 06 = None of these [ ]

B9. At what stage did you receive these counseling services in relation to the choice of vocation (programme)? 01 = JHS3 [ ] 02 = 1st Year [ ] 03 = Both JHS3 & 1st Year [ ] 04 = 2nd Year [ ] 05 = 3rd Year [ ]

B10. How often do you receive these services? 01 = Once [ ] 02 = Twice [ ] 03 = Thrice [ ] 04 = Several times [ ] 05 = None of them [ ]

Information on Prospects of Gender Participation in Technical and Vocational Education and Training. Please read the statements below; decide whether you strongly agree, agree, disagree, strongly disagree or uncertain, and then circle the number of your choice.

B11. Girls (women) should be encouraged to study technical courses/programmes in schools for employment opportunities.

01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B12. What factors influence the decision of parents to send their girls to technical and vocational institutions?:.....

.....

.....

B13. What factors have influenced or motivated your decision to go into technical and vocational education?.....

.....

.....

B14. Do you think more females should be enrolled in technical programmes/courses such as metalwork, auto mechanics, masonry, carpentry, building construction, etc. in technical/vocational training institutions? 01 = Yes [ ] 02 = No [ ]

B15. If yes, give reasons:.....

.....

.....

If no, give reasons:.....

.....

.....

B16. Are there advantages for women working in technical related or male-dominated occupations? 01 = Yes [ ] 02 = No [ ]

What are these:.....

.....

.....

B17. Are there disadvantages of women working in technical related or male-dominated jobs? 01 = Yes [ ] 02 = No [ ]

What are these:.....

.....

.....

B18. How do you feel about women going into technical and vocational education?

01 = It's fine [ ] 02 = I don't have a strong opinion [ ]

03 = I don't think they should [ ]

B19. Do females get job placement after training in technical courses from Technical and vocational training institutions? 01 = Yes [ ] 02 = No [ ]

B20. Do you have interest in any vocation such as electrical/electronic engineering, motor vehicle, building and construction, painting/decoration, etc. apart from business and other related courses? 01 = Yes [ ] 02 = No [ ]

B21. If yes, give reasons.....

.....

.....

If no, give reasons.....

.....

.....

B22. What job opportunities are available for you in this vocation?.....

.....

.....

Information on Challenges/Problems facing Females' access to Technical and Vocational Education and Training. Please read the statements below; decide whether they are true or false, strongly agree, agree, disagree, strongly disagree or uncertain, and then circle the number of your choice.

B23. Cultural beliefs such as "women are inferior sex", "women who chose to offer technical or vocational education cannot marry and have children" and others, do not permit girls or women to go into technical and vocational education and training.

01 = True [ ] 02 = False [ ]

B24. Women or girls study vocational and technical courses only when they are motivated by parents or guardians or role models.

01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B25. Some teachers or education officers concentrate more on boys in technical and vocational education and training than girls. They argue that it is useless to train women in vocational and technical skills because no one will hire (employ) them, due to cultural considerations.

01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B26. Peer group influence has an effect on women going into vocational and technical education. 01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B27. Government should provide financial assistants to females willing to go into technical and vocational education. 01 = Strongly agree 02 = Agree

03 = Disagree 04 = Strongly disagree 05 = Uncertain

B28. How is the delivery of lessons by teachers in your school?

01 = Excellent [ ] 02 = Very Good [ ]

03 = Good [ ] 04 = Unsatisfactorily [ ]

B29. Methods adopted in teaching practical lessons are.....

01 = Satisfactorily [ ] 02 = Good [ ]

03 = Below Average [ ] 04 = Very Poor [ ]

B30. Do you have difficulties with the skills involved in your chosen vocation or programme? Yes [ ] No [ ]

If yes, state the problems you personally encounter in your chosen vocation currently pursuing?.....

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Information on Public Perceptions about Women in Technical and Vocational Education

B31. Technical and vocational education is not good for girls or women because they can not gain employment. 01 = Strongly agree 02 = Agree

03 = Disagree 04 = Strongly disagree 05 = Uncertain

B32. Only the academically weak persons (females) pursue or offer vocational and technical programmes or courses in technical and vocational institutions.

01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B33. Women or girls who take technical and vocational education or courses at the second cycle levels find it difficult entering or pursuing further studies in any tertiary institutions. 01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B34. Girls underestimate their potentials in technical and vocational education or male-dominated courses like plumbing, metalwork, woodwork, auto body spraying, etc.

01 = Strongly agree 02 = Agree 03 = Disagree

04 = Strongly disagree 05 = Uncertain

B35. Women do not have strength to offer technical courses to be employed to work as efficiently as men. 01 = True [ ] 02 = False [ ]

B36. Please, state what you feel can be done to erase the negative perception about the girl-child or women's access and participation in technical and vocational education and training:.....

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B37. How do the following people relate to you in view of your choice of vocation or programme?

01 = Family Members:	supportive [ ]	not supportive [ ]
02 = Teachers/Trainers:	supportive [ ]	not supportive [ ]
03 = Course Mates:	supportive [ ]	not supportive [ ]
04 = Community Members:	supportive [ ]	not supportive [ ]

Thank You For Your Response

APPENDIX C

A TABLE DESIGNED FOR THE SELECTED INSTITUTIONS TO PROVIDE ENROLMENT STATISTICS OF MALE AGAINST FEMALE STUDENTS IN THE VARIOUS PROGRAMMES/COURCES

Three-Year Period: 2007/2008 – 2009/10

Programme/ Course	No of Males in each Academic Year			No of Females in each Academic Year		
	2009/2010	2008/2009	2007/2008	2009/2010	2008/2009	2007/2008
Catering						
Fashion Designing (Tailoring)						
Auto Vehicle Mechanics						
Welding						
Mechanic Engineering Craft Practical						
Electrical Installation						
Radio, TV/Computer Repairs						
Plumbing						
Carpentry & Joinery						
Block laying & Concreting						
Metal work						
Woodwork						
Refrigeration & Air Conditioning						
Masonry						
General Business -- Accounting Option						
General Business -- Secretariat Option)						
Visual Arts						
Others…… …… ……						

Source: Author's Construct, 2010