

**A COMPARATIVE STUDY OF FEMALE PARTICIPATION IN  
BUSINESS AND INDUSTRIAL/CONSTRUCTION FIELDS IN  
ENTOTO AND WINGATE TVET COLLEGES IN ADDIS ABABA**

**Thesis Presented to the school of Graduate Studies  
Addis Ababa University**

**In Partial Fulfillment of the Requirements  
For The Degree Master of Arts In  
Vocational Education Management**

**By  
Fetlework Haileyesus**

**May 2011  
Addis Ababa**

## **Acknowledgments**

I am deeply indebted to my advisor Dr. Getachew Adugna for his unfailing support and indispensable guidance without which this thesis would have remained incomplete.

I would like to express by heartfelt thanks to the students and instructors of Entoto and Wingate TVET colleges, especially regular program. I would like to extend my gratitude to Wingate and Entoto college officials, who were at my disposal while I was conducting the interview.

**Fetlework H/Yesus**



## Table of Contents

	<b>Page</b>
Acknowledgements -----	i
Table of Contents -----	ii
List of Tables -----	iv
Acronyms -----	vi
Abstract -----	vii

### **CHAPTER ONE**

<b>Introduction</b> -----	1
1.1 Background of the Study-----	1
1.2 Statement of the problem-----	3
1.3 Objective of the Study-----	5
1.4 Significance of Study-----	5
1.5 Delimitation of the Study-----	6
1.6 Limitation of the Study -----	6

### **CHAPTER TWO**

<b>Review of Related Literature</b> -----	7
2.1 Technical and Vocational Education and Training (TVET)-----	7
2.2 Opportunities and Challenges of TVET-----	15
2.3 Access of TVET to Women-----	17
2.4 Major factors that affect Equal Access of TVET to Females-----	19
2.5 Some measures taken to encourage females in science and technology fields-----	24

### **CHAPTER THREE**

<b>Research Design and Methodology</b> -----	32
--	----

3.1 Research Design-----	32
3.2 Sources of data-----	32
3.3 Sample and Sampling Techniques-----	33
3.4 Data Gathering Tools-----	34
3.4.1 Questionnaire -----	34
3.4.2 Interview -----	35
3.5 Data Collection Procedures-----	36
3.6 Document Analysis -----	37
3.7 Data Analysis and Management-----	37

#### **CHAPTER FOUR**

<b>Presentation, Analyses and Interpretation of Data -----</b>	<b>38</b>
4.1 Characteristics of Trainee Respondents-----	38
4.2 Document Analysis Regarding Enrollment and Achievement -----	39
4.2.1. Sex Distribution across Departments in Industrial/Construction Stream-----	40
4.2.2 Analysis of Females' Success in Industrial/ construction Fields -----	45
4.2.3 Achievement Comparison between Sexes in Major Training Streams-----	46
4.3 Information from Interview -----	48
4.4 Possible Solution Suggested to Improve Females Participation in Industrial /Construction Fields-----	58

#### **CHAPTER FIVE**

<b>Summary, Conclusion and Recommendations-----</b>	<b>59</b>
5.1 Summary -----	59
5.2 Conclusions-----	62
5.3 Recommendations -----	62
<b>BIBLIOGRAPHY -----</b>	<b>64</b>

Table: 15 Perception of Trainees in Industrial/Construction Field----- 60

Table: 16 Response of Trainees On the Effort of Female Trainees  
In Doing Assignments ----- 61

Table: 17 Reasons for Female Students To Dropout From Industrial/  
Construction Fields ----- 62

## **Acronyms**

TVSD -	Technical Vocational Skills Development.
UNESCO -	United Nations Educational, Scientific and Cultural Organization.
ESDP -	Educational Sector Development Program
MDGs -	Millennium Development Goals

# **Chapter one**

## **Introduction**

### **1.1 Background of the Study**

The issue of the right to education has been recognized since the Universal Declaration of Human Rights (UDHR) in 1948. Similarly, the right to education, without discrimination and of good quality, has been reaffirmed in all major international human rights conventions (Usmani, 2004).

These rights have been further elaborated to address issues like quality and equity, and how it can be achieved. It is also stated that, as a minimum, states must ensure the availability, accessibility, acceptability and adaptability of education for all.

The right of females to education is one of the most critical of all rights. Because, education plays an important role in enabling girls and women to secure other rights (King, 1990).

According to King (1990) and King and Hill (1993), if a woman is educated, she will get access to improve different things. She can have the access to work in public and private institutions. Furthermore, girls' education improves child's education, family health, productivity, income and economic development on the national level.

In this regard, promoting equality of access to education for females and improving their academic performance becomes a priority issue today.

However, there are some constraints that hinder equal access of girls' education. Kane, (1995) states these constraints as: family costs, including opportunity costs, early marriage, teenage pregnancy, gender biases, inaccessibility of

schools and cultural perceptions of boys that they are superior to girls regarding abilities.

These constraints have more faces in developing countries, especially, in Africa. In relation to this, Genet (1991: 89) states:

*The general picture of female education in sub-Saharan Africa shows that enrollment of primary, secondary and tertiary levels is characterized by gender disparity, in which the number of females by far is lower than that of males, high rate of dropout, absenteeism, poorer performance, biased or under representation in curriculum and concentrate in few fields of study (Genet, 1991:89).*

The number of female students in primary, secondary, and tertiary is lower than male students, due to cultural beliefs, customs, pregnancy and insecurity. The other constraint is economic factor. If the income of family is lower, it will affect females' education. Low income of a family will affect the females' education.

When we come to Ethiopia, before the Education and Training Policy of 1994, women's education was not given that much attention. Seyoum (1986:8) stated that in earlier periods there was discrimination of women to education. He also pointed out that the religious institutions were the major responsible for the discrimination of female education. As the church was the main place for education and as males were seen as prior to females, educational access had been reserved for men. For instance, preparing priests and deacons was the main objective of church education and this was given for males. This holds true in mosques too (Seyoum, 1986).

However, Ministry of Education (MOE) in its Education and Training Policy of 1994 puts a mechanism to alleviate the problem of equal access to education.

In this regard, the MOE adopted different regulations. One of these policies states this point as:

*Nowadays, the importance of participation of girls in education has been determined as necessary and has given emphasis (MOE, 1994). The disparity in education of boys and girls has been seen in the country as it is in between rural and urban and between geographical locations and of ethnicity. With various reasons of economical, social and cultural constraints, the enrollment of female students at all level is very low as compared to male students. The problem of equity and access in the education of girls needs due attention since gender disparity is evident significantly, especially in rural areas (MOE, 1994).*

Equity and access in the education of girls will yield economic and social benefits of a country. If women are educated, they will reduce poverty and raise their income.

At present, the MOE has also developed a TVET strategy which offers various fields of study in different technological and business fields. Some of the industrial and technological fields cover automotive, general mechanics, electric/electronics, machining and construction technology, which encompasses occupations such as surveying, drafting and building construction, plumbing and other fields. On the other hand, the business field covered fields like secretarial science and accounting.

On the basis of the above points this research intended to see the difference in participation of males and females in different TVET fields of studies, especially in business, industrial and technology fields, and to investigate the reasons for this difference to forward some recommendations.

## **1.2 Statement of the problem**

The purpose of this study is to investigate male-female participation in different TVET fields, and which see the major reasons for this difference in the two particular colleges and on these particular fields.

The Transitional government of Ethiopia in its National Policy for Ethiopian women puts some mechanisms to ensure the equality between men and women. It is stated that the government shall provide women with special support particularly in education, training and employment so that they may participate in political, economic, social and cultural affairs on equal basis with men (The Transitional Government of Ethiopia, 1993).

As stated by Yelfign (1995), article two of the policy states this point as:

*The government shall facilitate conditions conducive to the participation of women in both elaboration and decision making process in regard to community developments, social welfare, division of land property, education and basic social services (Yelfign, 1995, p.5).*

The Ethiopian government provides women equal education and encourages them to make decision in an organization. The women can participate in social work activities.

Though this policy and other policies adopted by MOE advocate the equal access of education to education, the researcher thought that there are some subject areas that are still highly segregated according to sex. For example, women are more likely to choose business fields such secretarial science, office management and accounting, while men are more likely to choose to study industrial and construction areas.

Despite the trend towards the difference in numbers of female and male students in higher education, young women and men often choose different subjects to study. Gender-based stereotypes still influence choices in education, as well as parental views of what they expect from their children. These stereotypes discourage women's enrolment in fields traditionally regarded as "men's fields", and encourage girls to pursue fields that are traditionally seen as more suitable to women as mothers and caregivers. By the same token, these stereotypes largely discourage men to pursue fields that are seen as traditionally

female, such as secretarial. Gender-based stereotypes in school curricula, textbooks, and teachers' attitudes also affect a student's future choice in determining his/her field of study and occupation.

### **Research Questions**

To achieve the objectives of this research, the study attempted to answer the following research questions.

1. What does the participation of female trainees in Business and Industrial/construction fields look like in public TVET of Addis Ababa?
2. What are the factors that affect the participation of female trainees in these fields?
3. What needs to be done to promote the participation of female students in TVET?

### **1.3 Objective of the Study**

The general objective of this study was to examine the status of female participation in selected fields in two public TVET colleges in Addis Ababa.

Based on this general objective, the study had the following specific objectives.

1. To see if there is significant difference in the enrollment of the two sexes in business and industrial and construction fields.
2. To identify factors that affect female participation in some fields.
3. To forward possible measures of promoting the participation of female trainees in business and industrial/construction fields.

### **1.4 Significance of Study**

The findings of the study would assist female students to realize their potential to join different fields that seem segregated for females, and facilitate the situation to join in the area of their interest. In addition the findings of the study would help:

- Educational leaders would be able to develop relevant curriculum to enhance the interest of female students and alleviate the scarcity of skilled manpower.
- Educational councilors could direct female students to join different fields of studies as females have potential to join any field.
- It serves as a steppingstone for future researchers who are interested in conducting research in this aim and can be input for them.

### **1.5 Delimitation of the Study**

There are 448 TVET colleges in Ethiopia, it could have been better if a number of TVET colleges would be included in this study. However, to make the study manageable, geographically the study area is delimited to Addis Ababa. In addition, only two public TVET Colleges namely, Entoto and Wingate TVET Colleges, as they have long year experience in different fields of TVET. Furthermore, the research is limited to two fields of studies, as the major difference has been seen in these fields.

Moreover, since there are various fields of study offered in TVET colleges, the focus of this study was delimited to compare the participation of female students in regular program in Business and Industrial/construction fields.

### **1.6 Limitation of the study**

In the process of this study, acquiring relevant materials which are related to the topic was very difficult. To obtain data from both colleges under study, especially data on enrollment and graduation, has taken a lot of time. However, the researcher has made effort and completed the study.

## **CHAPTER TWO**

### **Review of Related Literature**

#### **2.1 Technical and Vocational Education and Training (TVET)**

The most vital concern that faces human society during this century is the attainment of a higher level of social and human resources in the global economy. As economic, social and technological situations change rapidly, people everywhere need to develop their knowledge and skills, on a continuous basis, to live and work meaningfully in that society.

Education and training contribute to an individual's personal development, increase her/his productivity and incomes at work, and facilitate everybody's participation in economic and social life. It follows that education and training can also help individuals to escape poverty by providing them with the skills and knowledge to raise their output and generate income.

Furthermore, in a time of continuous economic, social and technological change, skills and knowledge become quickly out-of-date. People who have not been able to benefit from formal education and training must be given opportunities to acquire new skills and knowledge that will give them a second chance in life and at work.

The Technical and Vocational Education and Training (TVET) sector has a crucial role to play in the development of human resources for future manpower requirements. According to Finch and Crunkilton (1999), TVET refers to deliberate interventions to bring about learning which would make people more productive (or simply adequately productive) in designated areas of economic activity. So, TVET is education and training that prepares persons for gainful employment.

Quality TVET help develop the individual's knowledge of science and technology in a broad occupational area requiring technical and professional competencies and specific occupational skills.

UNESCO and ILO's General Conference on Technical and Vocational Education and Training referred to TVET as "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 related to occupations in various sectors of economic and social life. (UNESCO and ILO, 2002).

The intrinsic value of TVET lies in its relationship to the social and economic development. It has often been said that the greatness of a nation is not its tremendous wealth but its ability to utilize its human resources wisely. In relation to this Barlow in Somers and Little (1971:11) stated that:

*Vocational education is a social process concerned primarily with people and their part in doing the work that society needs done; it is concerned with preparing people for work and with improving the work potential of the labour force. For people, this means economic of independence, self-realization, and dignity. Their work results in production the goods and services needed by a dynamic society.*

The purpose of vocational education is to prepare people for sustainable employment. Vocational education provide skills for the employees.

In relation to the specific purpose of TVET Giachino and Gallington (1964:75) set forth nine points. These are:

- To develop specific skills and related knowledge associated with the occupation involved.
- To develop an understanding of labor and management.
- To develop pride in work and an appreciation for craftsmanship.
- To develop occupational safety habits and understandings.

- To develop ability to co-operate with fellow workers in the occupation involved.
- To develop individual initiative and responsibilities as a worker.
- To develop ability to solve problems.
- To stimulate the development of leadership qualities.
- To foster the development of self-reliance.

Thus, TVET helps to develop a broad skilled and technical labour base that is able to meet the needs of rapidly changing industrial organization and technology.

Technical education mainly refers to theoretical vocational preparation of students for jobs involving applied science and modern technology. The goal of technical education is to prepare graduates for occupations.

Vocational education can be explained in terms training designed to advance an individual's proficiency in relation to his or her present or future occupation, training or re-training which is given in schools or classes; provision of systematic training experiences which are designed to fit individuals in recognized occupations.

Vocational education can also be seen as that education designed to prepare individuals for gainful employment as semi-skilled or skilled worker or technicians or sub-professional in recognized occupations and in new and emerging occupations or to prepare individual for enrolment in advanced technical education program. It is directed towards the preparation for occupational life since its recipients are equipped to face the challenges of the world of work. Vocational education preparation can be equated to the acquisition of a training experience that culminates in an industrial experience within a work-oriented society. It entails the transmission of knowledge and acquisition of skills that are related to various occupations (Finch and Crunkilton, 1999).

Thus, vocational education is that part of total educational system, which offers courses leading to the acquisition of specific skills to enable one to perform certain job. Sometimes, vocational education offers re-training to up-grade workers already in employment.

Technical and Vocational Education is needed in every aspect of our life. The problem of crimes related to youths can be reduced if they are given the necessary vocational training that will keep them busy. In developed world, vocational and technical education is regarded as a wise investment. It is believed by many people that through vocational and technical education and training, boys and girls as well as adults will be trained to acquire requisite skills that will enable them secure employments, which will be beneficial to themselves and the society (Ugwuja, 2010).

In general, the Technical and Vocational Education is the merging between the Technical Education and Vocational Education i.e. the inclusion of basic technical and scientific knowledge with the skill-based vocational programs. This is the higher level of skills and knowledge required to be taught as advanced learning prior to workplace entry to cope with the emergence of technologies in the workplace.

## **Background of TVET**

The beginning of TVET is difficult to trace as it connotes skills and competencies, which has been embedded in surplus of other histories. The perception of the origin of TVET by many is in diverse ways. However, according to Usman (2007), general education and training began in pre-history with the transmission of knowledge and culture from one generation to the next. The use of tools, beginning with those made from stones, evolved as humans evolved. In the pre-historic hunting and gathering society, skills were passed from parent to child as members of small, usually related groups. The transition from this

stage to the settled cultivation of crops marks the beginnings of civilization, and with it recorded history.

Over the last 40 years, the importance attached to technical and vocational skills in national and international development agendas has varied. During the 1960s and 1970s, TVET became popular with many African countries as a way to ease the problem of unemployment among school leavers. However, in the 1980s, budgetary pressures resulted in many countries reducing the share of government budgets for public education, including formal TVET. Rate of return studies, which showed that returns to general education were higher than to vocational education, also undermined much external support for vocational education and training (African Economic Outlook, 2008).

During the 1990s, the international policy debate on education was mainly focused on basic education. Although skills training, apprenticeships, and formal TVET programmes were seen as components of the expanded vision of basic education at the World Conference on Education for All (WCEFA) in Jomtien in 1990, they have not featured substantially as a core element of the global agenda of education since that time.

According to UNESCO-UNEVOC (2009) the expansion of primary education during the 1990s has put enormous pressures on the still small secondary school and formal TVET systems of many African countries by increasing the supply of candidates. In the mid 2000s, recognizing that universal primary education entails the need for coherent pathways to further education and to skills for employment and self-employment, an international consensus was reached on the need for a holistic, integrated, inter-sectoral approach to education, including TVSD (Technical Vocational Skills Development). This new vision has driven several TVSD system reforms, which are currently taking place in Africa and led to a reappraisal of donors' support strategies. The principles of a holistic approach to technical skills developments were accepted by the Commission for Africa, the Millennium Project, incorporated in new World Bank

In 1994, the government of Ethiopia has developed Education Training Policy. The goals, strategies and programs of this policy address the problems of access, equity, quality and relevance in education (Lasonen, 2005).

With this regard, it has given emphasis that increasing the trained labor force helps to develop the country. To achieve this, the government has undertaken reforms in the following areas:

- Basic education (access, equity, quality and drop out of students ).
- Secondary education (access, quality, continuing education for out-of school young people and adults).
- Technical and Vocational Education and Training and
- Teacher education (increasing the proportion of qualified teachers and improving the quality of teacher training.) (Ministry of Education, 1994).

According to Lasonen (2005), Technical and Vocational Training is one of the main components of Education Sector Development Project (ESDP) policy. The Education Sector Development Programme provides a sector-wide policy for educational development.

Generally, the Ethiopian government found it necessary to expand TVET by increasing its relevance and specially its accessibility for all and specifically for girls.

### **Objectives of TVET**

The World Bank, International Labor Organization (ILO), United Nations Educational, Scientific and Cultural Organization (UNESCO), and other organizations have recently shown drive towards actively recognizing anew the role of TVET. However, UNESCO, which is at the forefront of TVET promotion,

had the following objectives established at the Seoul Congress (UNESCO, 1999:3):

- To provide TVET for all;
- To orient TVET for sustainable development;
- To strengthen TVET as an integral component of lifelong learning.

Accordingly TVET helps to expose pupils, to give them equal opportunities to choose their future careers. Furthermore, it helps both female and male students to choose appropriate careers by providing business and industrial courses. TVET encourages equal access and participation of girls and women in technical and vocational education (UNESCO 1996).

One of the key goals of the Education for All (EFA) Framework for Action adopted in Dakar, Senegal, in 2000 (UNESCO, 2000) stipulates that the learning needs of all youth and adults should be met through access to appropriate learning and life-skills programs. Since this is basically what TVET does, the linkage between the two thrusts already exists, but must be strengthened and broadened in the future.

TVET can take place either in formal schools or increasingly in post-secondary community and/or technical colleges, or informally by means of training at the workplace and also by distance media. TVET prepares learners for specific jobs or types of work, often including practical and/or procedural activities. The aim of TVET is to enable learners to meet needs of employers for qualified labor and/or own needs related to production of goods and services.

At a UNESCO Expert Meeting held in Bonn, Germany, 25 to 28 October 2004, approaches and practices were presented to illustrate the contribution that TVET had made towards a more sustainable future.

It was contended that since education is considered the key to effective development strategies, technical and vocational education and training (TVET) must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development. With this, TVET has to re-orient its agenda for action so as to continually provide scientific and technical skills in relevant and responsive programs, and consequentially develop a new generation of human resources.

Countries undertaking the different activities in structuring their educational systems to meet development needs give more attention to the role of TVET. With this regard, UNESCO (1979:9) has stated that political leaders, economic planners and educators in many countries appear to consider the development of technical and vocational education as the keystone of an educational system that can be adapted to the needs of individual in a society in which he or she lives. Hence, countries should engage in rethinking their educational systems in order to give much larger concern and attention to technical and vocational education and training (TVET) if education is to be responsive to contemporary demands of a society. Developing countries need to improve their productivity and economic growth.

## **2.2 Opportunities and Challenges of TVET**

There are some opportunities and challenges that face TVET. Below are some of the key opportunities in TVET:

- Globalization is prompting governments to take renewed interest in TVET form of education;
- In nations where unemployment is endemic, TVET, particularly in areas fostering entrepreneurship and small enterprises, becomes increasingly important for the future. Tilak (2003) characterizes TVET as an equity measure because it promotes 'equity with a rural bias and serves the needs

of relatively poor people', as well as being a solution to urban-biased elite education'(p. 675);

- There is no question as to the importance of skills development for reducing poverty;
- The increasing importance that African governments now attach to TVET is reflected in the various Poverty Reduction Strategy Papers that governments have developed in collaboration with The World Bank (UNESCO-UNEVOC & UNESCO-UIS, 2006).

Though there were opportunities, there are also challenges that face TVET. The following are some of the challenges.

- The image and status of TVET has consistently faced problems as it is perceived by some as insignificant. These difficulties must be met with a renewed effort to raise the public perception of TVET;
- The urgent challenge is to bridge the demand for jobs with the actual needs of society;
- The Promotion of TVET for girls and women: this is essentially an issue of access to TVET and, how females can join different fields of studies and once girls and women enter TVET institutions, how they are received and accommodated. Attracting more female instructors and administrators into TVET is a major challenge;
- TVET facilities and equipment: There is a major problem associated with high cost of construction, equipment, maintenance and the provision of consumable training materials. Furthermore, routine and preventive maintenance have also constituted persistent problems,
- TVET teachers' conditions of service in most countries are not the same with those in academics, as such; it serves as a demotivating factor;
- Workplace Health and Safety: HIV/AIDS upon youth and working-age populations is a major challenge to be faced by TVET. HIV/AIDS, the very educative process is in jeopardy;

- **Teaching and Learning:** As TVET becomes increasingly more knowledge oriented, the role of the teachers and instructors must change from teacher centered, the didactic imparting of skills and knowledge to the facilitation of learning, to learners-centered.
- **TVET Planning:** In most cases where TVET programs fails, appropriate and relevant parties are not involved at the planning stage.
- **Corruption:** Most people restrict corruption to financial misuse. This corruption may start from the research and planning stage of TVET. The worst aspect of it is related to policies that obscure TVET related programs which are capable of empowering the society with skills and competencies that could lead to standalones (UNESCO-UNEVOC, UNESCO-UIS, 2006 and AU, 2007).

For UNESCO, TVET goes beyond the narrow confines of economic planning. It is part of a larger vision for promoting sustainable development. Since its founding, UNESCO has been developing recommendations and organizing policy debates, while serving as a policy advisor for governments trying to reform, create vocational education systems and to cope up with the challenges.

### **2.3 Access of TVET to Women**

The most important role of TVET is to prepare people for the world of work and to enhance economical and social development of a country. In order to achieve this, it is important to make TVET accessible for all regardless of area and gender. However there are some factors that hinder the equal access of TVET to females in different countries.

If we take Austria, with the expansion of the educational system, more young women are gaining the general qualification for entering the higher education. The concentration of women in the area of business, economics and secondary education in schools influences women's choices of study in technical colleges and universities. Because of this, female students join social and economic

sciences, but they are under-represented in the disciplines of technology (Sagaria, 2007).

The National policy on Education (NPE) (1986) of India stated some of the objectives of women's education as:-

1. Elimination of illiteracy and minimization of dropout;
2. Ensuring opportunities of quality of education to all women;
3. Providing non-formal and part time courses to women to acquire knowledge for their social, cultural and economic development.

However, as Usmani (2004) pointed out, though the National Policy on Education of India (NPE) (1986) stated that there is a program to increase women's access to vocational, technical and professional education with equal access, there is a problem for women to join the technological fields. Similarly, though there is need for education in Africa, in most of the countries the problem of equal access to TVET in different fields to females has problem. For instance, though Ghana has made progress towards achieving equal access to education, the socio-economic factors, include low parental income, low parental level education, religious practices and household chores, have created problems in achieving equal access of TVET to females. (Alhassen, 2010).

In addition, low level of education was also one of the major factors affecting women's participation in governance process (Gyimah, 2008). Due to low level of education or complete lack of it, women cannot participate equally in public decision making processes and different educational fields. Furthermore, the socio-cultural background of women has got a negative impact on them because they lack the courage and confidence to participate in public activities including education.

However, vocational education and affirmative action policies are recommended to reduce and eliminate the socio-economic problems and promote girls progress (Alhassen, 2010).

When we come to the measures that have taken to improve equal access of TVET to females in Ethiopia, the Ethiopian National Technical & Vocational Education and Training Strategy (2008) a great emphasis is given to ensure equal access of women and people with special needs to TVET.

## **2.4 Major factors that affect Equal Access of TVET to Females**

The promotion of equal access of women to TVET started in earlier decades, but the most significant effort was carried out in September 1995 during the fourth World Conference on Women in Beijing, China. Thereafter; UNESCO's Medium-Term Strategy for 1996–2001 laid down actions to secure gender equality. Mainstreaming the gender perspective in all policy planning, implementation and evaluation activities so as to fully benefit from women's competence, experience and potential in TVET has gained momentum across the nations of the world. However, to this date, many of the initiatives fall short of the expectations to bring women's synergy into TVET.

Gender discrimination and inequality in education and training affects women across societies all over the world. Education is a critical path to empower women as it yields economic and social benefits and helps improve the overall well-being of an individual. The Millennium Development Goals (MDGs) was laid out as a road map for global change which identified eight developmental goals to address poverty worldwide. Among the eight MDGs, universal education and gender equality (goals 2 and 3) stand out as the catalyst cutting across sectors and linking the other goals together.

Dealing with the issue of TVET for All, the report of the Second International Congress on TVE (1999) expressed concern about the under representation of women in TVE. It went on to recommend as follows:

*Traditional perceptions of appropriate roles for men and women in the work place should be challenged. TVE must respond with gender-inclusive learning programs, both in content and delivery, including measures to attract men into previously female-dominated training and careers. Faculty need to be gender-sensitive. (UNESCO, 1999. Second International Congress on Technical and Vocational Education: Final Report. Seoul, Republic of Korea, 26-30 April 1999, p. 66).*

The emphasis of vocational training programs on traditional male skill areas has meant that male students dominate in the better resourced vocational areas such as electronics, industrial design, carpentry and plumbing etc, while girls are confined to commercial studies (secretarial), dressmaking and catering etc. The information and communication technology (ICT) revolution has added a new male dominated area of expertise, despite the fact that it requires keyboard skills, a traditional female area - women are largely relegated to word processing while men take on the more complex and exciting technical aspects of ICT work. Even where women have been able to enroll in male dominated skill areas, this has not resulted in increased numbers (Ellis, 1990).

As Ellis (1990) has pointed out, the experience in the Caribbean where girls outnumber boys at all levels of education, and where there are more women with professional or technical training, there is still a gender stereotyped selection of subjects. Coombe (1988) found that the Commonwealth experience of vocational education for girls revealed that, even where governments had introduced positive discrimination to encourage girls to enroll in technical courses, and in some cases had introduced quotas, in practice social and cultural conventions, peer pressure and the fear of sexual harassment continued to deter girls from joining. Mbilinyi and Mbughuni's (1991) study of education in Tanzania also showed that girls were very under-represented in TVET (20.7 percent of trainees in 1989), continued to be found in the traditional

female skill areas, and risked being further marginalized by the emphasis on 'modern' skills in high level technology.

From my own experience, although different measures have been taken to facilitate equal access of TVET to all, especially to females, girls and women are still marginalized in scientific and technological fields. This is reflected in very low enrollment in these areas. Because of this, the objective of this study is to see this problem and to recommend some solutions

Girls would choose traditionally female oriented occupations even though there is equal access to male dominated occupations. Some of the major causes inhibiting girls and women from pursuing technical and vocational careers include: Societal Norms and Prejudices, lack of encouragement and role models, feeling of incapability, ignorance and Economic barriers

Furthermore, the social and cultural norms, in which girls are brought up, influence their choice of subjects. Female students choose those subjects that are associated to domestic role. Because of that most of female students forced not to choose industrial and technological fields.

According to Teshome (2002), in sub Saharan Africa, socio cultural factors include culture beliefs, customs, pregnancy and insecurity. Due to such socio-cultural factors, women have faced double burden of work; house chores and other activities, therefore, they could not come to the education and public activities, as women's household chores and farming activities took much of their time. In order to alleviate this problem it is important to give more attention to the issue.

In Nigeria, in the past, females have low status. They have poor health, inadequate diet and early pregnancy. The women's low socio-economic status exposes them to physical and sexual abuse and this leads them to be fewer participants in the education system (Uwakwe, Mercy O.2004).

As Ogunleye (2006) mentioned, in Nigeria, due to less concern for some fields of TVET to women, they work in four career categories namely: nursing, teaching, secretarial and clerical positions. These stereotypical feminine occupations pay less income and have less status when compared to engineering and architecture. This means nurses, teachers, secretaries and clerical workers are paid less than engineers and architecting. Few women have entered the male dominated profession. These women are held with suspect by the society. This can lead to gender discrimination in job allocation. A female engineer will be asked to stay behind in the office to attend to files and the male engineer is posted to the site to work.

In most of the Sub- Sahara countries the major task or job of women is considered to bear and to raise children. However, nowadays, changes in the societies brought new system which makes female to participate in all areas and encourage males to share house chores.

In relation to Ethiopian context, Tsehai (1991) stated some factors which hinder females' participation to education as: "In Ethiopia, inequitable distribution of educational facilities, sex stereotyped education, parental discouragement and early marriage affect the education of women (Tsehai, 1991 p. 88)".

The other factor stated by Teshome (2002) is that the stereotyping of subjects promoted by families, teachers and school administrators to influence female students to join home economics, nursing or secretarial courses. Because of lack of the courage and confidence to participate in some fields of jobs and public activities, the socio-cultural background of women to participate in some fields of studies and jobs has brought a negative impact on them.

In the past, in Ethiopian education system, boys were encouraged by their teachers to take up natural science and mathematics while girls were advised to study such subjects that are feminine domains. Because of the gender bias in

subject choices, girls are streamed out of the science, technology and mathematics fields. Contrary to this, boys were perceived by their teachers to be hard workers and are able to deal with masculine subjects.

As the result of the factors discussed so far, the number of females who could be role models for others has been less and this also has created a problem on the participation of females in some fields of TVET.

The other factor that faces women is economic barriers that constrain their participation in the educational and labor market. These factors include equal access of some TVET fields, low probability of working in some sectors, low salaries and long working hours (Teshome, 2002).

According to Teshome (2002) in Sub-Saharan Africa, the socio-economic factors include direct and opportunity costs of schooling, limited employment opportunities of girls and the level of parental education. He also stated that in most African countries, direct school costs are the major reasons for parents not to educate girls or for removing them from the school: such costs include fees for registration and admission, examination, boarding, cost of uniforms and transportation. The other problem mentioned by him was distance from school as an obstacle for girls' education. Therefore, adolescent girls become victims of sexual harassment and abduction.

In general, the socio-cultural factors, working environment, teacher attitudes and teaching practice and lack of learning materials, gender bias in curricula and economic barriers were some of the factors that affect female participation in some TVET fields of studies.

## **2.5 Some measures taken to encourage females in science and technology fields**

Gender equity means ensuring that all boys and girls regardless of age, cultural or ethnic background or disabilities have the support they need to become successful students and feel respected and challenged.

In order to give equal access of TVET in different fields of studies, different countries have taken measures. According to Yukiko (2006) Japan has devised a mechanism to encouraging young girls in science and technology field. The following were some of the measures.

- Opportunities are provided to junior/senior high school girls to work with female scientists and engineers.
- Lectures are offered for junior /senior high school by female scientists to widen the opportunity for school girls to become more familiar with science and technology.
- Seminars are held at local education centers to encourage girls to study mathematics and science and help them to set career paths.

The other measure that Japan has taken to encourage female students to science and technological fields was recruiting women into science and technology vocations.

However, Yukiko (2006) stated that there were some problems faced. Some of the problems were low rate of female researchers and few role models. In order to solve these problems, the government has taken measures that include: to provide information on career option, to conduct programs to stimulate their interest on science courses and to promote active female participation in science and technology.

According to Durando and Wastiau (2008) as scientific and technical skills are essential to bring change towards the economy of a nation, it is important to participate females in different scientific and technological fields. However, in several European countries, the female students' interest is falling in science and technology studies. To increase young girl students' motivation different European countries have taken different measures.

One of these measures was to narrow the gender gap in employment in science and technology fields, as the proportion of women was smaller in industry. One of the solutions to minimize the students falling interest was the development of new teaching approaches, as teachers and parents can play in combating falling interest in science and technical studies, it was important engaging teachers and parents in this process.

In addition, the International Labor Organization (ILO, 2010) has indicated negative effects of lack of education on women's employment to science and technology fields. As Tomasevski (2005) stated that women's level of education is very low in Turkey (one out of every two women job seekers has only a primary school education). In the Philippines, the rate of women in industries and top-level positions is low.

According to Tomasevski (2005) the following steps should be considered as helpful measures to make girls to exercise the right to education.

#### *Freeing Girls from Child Marriage*

Some of the obstacles to girl's education are early marriage, pregnancy and unpaid household work. Through marriage, girls lose their rights to education . This means, child marriage transforms a school girl into an adult. Therefore, married girls cannot enjoy the right to education. They will have burdens with responsibilities. They have to raise their children.

*Eliminating gender discrimination through Investment in Prolonged girls' education.*

Some research findings, (UN, 1995, Singh and Samara, 1996, UNESCO, 2001) show that secondary education helps to eliminate child marriage. If the child enters secondary school after primary education then she will stay at school for some years. By this time, she will not get married and she might also have a right to study the fields she wants.

In statement given by Tomasevski (2005), the government should take the responsibilities for girls' education, because parental investment in a daughter's education may be negatively influenced by custom. For instance, in Bangladesh, marriage of a female child often caused financial burdens on the parents, because the parents perceived that investments made in the education of the girl child may not benefit her own family but the family of her husband.

According to Montegomery (1996) some of the barriers to women students' participation were classroom climate, self-confidence and interactions with faculty and with peers. In most classrooms the classroom climate is not conducive. Some faculty members tend to interact more with men and respond more positively to men's classroom contributions than to women. Compared to women, men typically participate in greater numbers in class discussions and Women are more hesitant than men when answering questions or sharing opinions. So, in order to solve this problem Montegomery (1996:18) suggested the following points as solution.

- Allow more time after asking a question before calling for an answer.
- Encourage non-participating students to join in discussion.
- Provide prompt feedback by handing assignments and exams back quickly.
- Assign groups of students to work through short problems during class.

The other problem was lack of self-confidence on women. Lack of self-confidence can affect the capacity of women. Women are concerned about the perception of engineering and some science disciplines as male professions. Many women students lack confidence in their future ability to balance engineering and science career with family responsibilities (Montgomery, 1996).

Montgomery (1996) stated that schools can play important role in increasing the self-confidence of women students. The following were some of the points proposed by him.

- Recognize individual academic achievements. For instance, to send congratulation note to students who receive academic awards;
- To encourage students to join engineering fields;
- To recruit more female in engineering fields;
- Encourage students to tutor others and to hold leadership positions, that will help to increase their confidence;
- Highlight the achievements of women. For instance, discuss women's historical contributions during class.

The other point Montgomery (1996) stated was Interactions with faculty and lack of adequate advising, discourages women students. Some ways to encourage positive students-faculty interactions are:

- Encourage women in informal discussions of career plans.
- Encourage women to apply graduate study program. Recruit women as research and teaching assistants.
- Inform women opportunities, such as internships, workshops and professional conferences.

Furthermore among the points stated by Montgomery (1996) was negative Interactions with their male Peers. He mentioned the following as barriers.

- Women's contributions are often ignored by men.
- Women who are confident in science and engineering classrooms get negative responses from their male peers.

In order to solve this he suggested the following as solutions.

- Praise women's academic achievements.
- Encourage students to work in groups by placing more than one woman in a group.

According to Montgomery (1996), in general, faculty members have to give attention to classroom climate, student self-confidence, and female students' interactions with both faculty and peers.

Schröder (2004) stated, that since IT industry has large employment opportunities, high rate of women participate in computer engineering. Even though competition is extremely high, the number of women in IT industry has increased significantly.

So, companies like IBM also encourage young women to become interested in engineering, technology and science. Specific companies such as IBM and Microsoft offer scholarships for women and provide jobs after graduation. Scholarships for women help to get women into leadership positions and doctoral programs. Many scholarships for women encourage female students not just to attend colleges and universities but to succeed afterwards. Others encourage women who have been out of schools for a while and want to return to their careers. Several scholarships encourage women into careers in engineering and business (Schröder, 2004).

## **Enrollment of Girls in Rural Areas of Ethiopia**

In Ethiopia, at the secondary level, few girls are enrolled due to limited number and location of schools. Therefore, girls are not secured. In addition, rural families need their children for work during the harvest seasons. School fees is another factor which prevent some parents from sending their children to school.(Educational Sector Development Program I (ESDP I)).

In urban areas, higher proportion of children enrolled in primary education than rural areas. In addition, girls enrollment is lower than boys in rural areas. The reasons are the distance that must be traveled to reach schools and security concerns, lack of school sanitation facilities, limited number of female role models and early marriage.

## **Goals for Educational Sector Development Program (ESDP II)**

The four major goals are:

1. To produce good citizens who develop attitude for research and capacity to solve problems and develop skill in different professions;
2. To realize the goal of achieving universal primary education with equity and quality;
3. To meet the quantitative and qualitative demand for trained manpower;
4. To build the capacity or sustainable development.

To achieve the goals of the skilled manpower requirement, the following major activities such as improving the management of TVET sector, strengthening staffing, improving modular curriculum, improving the availability of high – level skilled manpower and maintaining TVET activities are required.

## **Gender Issue**

The educational leaders should promote gender equality, improve access to education facilities and minimize barriers that affect girls education. Thus, relevant measures will be encouraged to prevent social and cultural barriers. In addition, community leaders will be oriented to create awareness on the importance of educating girls (ESDP II). Furthermore, institutions should ensure safe and appropriate learning environments. Curriculum and textbooks must be reviewed to remove gender bias. Gender awareness campaigns and training of parents, teachers and students shall be considered. Similarly, measures will be taken to increase the number of female teachers and managers.

In general, guidance and counseling services, affirmative actions and tutorial support will be strengthened (ESDP II).

## **Tertiary Education**

With regard to the participation of female students in higher education institutions, the government provides a policy at the entry level. The 2002/03 Higher Education Proclamation provided special support for girls and boys from regions (ESDP III). Furthermore, gender strategic plan has been prepared to follow-up females' education. The Ethiopian government is also encouraging private investors in tertiary education. The reason is the share of female students in private institutions is high, as most of the students are enrolled in diploma programme, but low in degree programmes (ESDP III). Therefore, effort is needed to improve access of education facilities.

## **Non-Formal Education**

Many countries introduced non-formal education for those who lack opportunities to participate in formal education. There are some characteristics

of non-formal education such as relevance to the educational needs and aspirations of the learners, flexibility of its organizational structure and capacity to adjust to variety of demands from different social groups – especially women and the disadvantaged (Wanna Leka, 1999).

In Egypt, in order to increase the participation of rural children including girls, “Community School Project” was introduced. The major factors of “Community School Project” are clearly stated objectives and targets, such as relevance of the curriculum to the beneficiaries, flexibility of class schedules, proximity of the community schools to the residence of beneficiaries and involvement of the community in school activities (National Conference 1999). As mentioned above, schools must be built near the residence of students and parents must participate with school activities.

In general, TVET is the center of education aimed at marketable and entrepreneurial skill. Therefore, TVET provides training for various target groups such as graduates of grade 10 as well as school leavers, people who are in employment, school drop outs and marginalized groups in the labour market. In addition, with the exception of “centers of industry” TVET programmes often grow most rapidly in urban centers where there is an immediate concentration of employer demand (MOE, Annual Abstract 2002 E.C./2009 -10 G.C.)

TVET enrollment by gender is summarized below.

**Table: 1. TVET Enrollment by Gender 2001 – 2002 E.C.**

<b>Sex</b>	<b>2001 E.C. (2009/10)</b>	<b>2002 E.C. (2009/10)</b>
Male	165,910	196,937
Female	142,591	156,483
<b>Total</b>	<b>308,501</b>	<b>353,420</b>
% Male	53.8	55.7
%Female	46.2	44.3

Source: Ethiopian Ministry of Education, TVET.

## **CHAPTER THREE**

### **Research Design and Methodology**

#### **3.1 Research Design**

The purpose of this study was to compare the participation of female trainees in industrial/construction and business fields. To this end, the research design employed is comparative study method because this method enables to scrutinize the relationship among variables in studies (Best 2006). Comparative research approach is a research strategy that seeks to explain differences between groups by examining differences in the experiences of group members (Lodico, 2010).

Comparative research method provides an explanation about the extent of relationship between two or more variables. It examines the relationships including similarities and/or differences among several variables (Wikipedia). According to Sarantakos, 2005), comparative research aims to identify similarities and/or differences between research units. It looks in two or more similar groups, individuals or conditions by comparing them.

The comparative study is also efficient method which shows in parallel two slides of two slightly different objects. The objects are cases which are similar in some respects but they differ in some other respects. The goal is to find out why the cases are different to reveal the general underlying structure which generates or allows such a variation.

#### **3.2 Sources of data**

Both primary and secondary data were used in this study. The sources for primary sources include trainees, instructors, department heads, deans and vocational councilors while the secondary data were gathered form reports and records of TVET colleges on students enrollment and other relevant documents.

### **3.3 Sample and Sampling Techniques**

Two TVET colleges, namely Entoto TVET College and Wingate, were selected by using purposive sampling technique. The main reason for the selection of these colleges is that these two colleges have a long year experience in TVET fields. The research population includes:

- A. Out of 605 trainees (both male and female), 121(20%) trainees in industrial/construction fields who are attending the regular program and
- B. Out of 276 (Entoto 196 + Wingate 80) instructors, 55(20%) instructors, 4 department heads, 2 deans and 2 vocational counselors.

One hundred and four male respondents were selected from industrial/construction fields using simple random sampling by using lottery method because of their large number (Cohen 2000). To select 17 female respondents from industrial/construction fields, due to limited numbers, availability sampling technique was used.

In short, 121 trainees (17 females and 104 Males), 55 instructors (males), 4 department heads, 2 deans, and 2 vocational counselors were included in the sample. Out of 276 instructors, 55(20%) instructors were selected by using simple random sampling by using lottery method. In addition, 4 department heads, 2 deans and 2 vocational counselors were also selected by using availability sampling technique.

### **3.4 Data Gathering Tools**

To answer the research questions, three data gathering instruments, namely, questionnaire, and interview and document analysis were used with the general assumptions that they would provide the researcher with a better picture by supplementing each other and a result failed to be obtained in one method may be obtained by the other method to be used for the triangulation.

#### **3.4.1 Questionnaire**

The questionnaire was designed for the purpose of gaining information from students, instructors, and department heads of the colleges. The questionnaire has close and open-ended items.

A questionnaire is an instrument that can serve as a means of collecting a considerable amount of data with a minimum of time and effort. It is not only easy to administer, but it also provides a general view of the problem which is difficult to obtain by other means of investigation. Questionnaire as pointed out by Anderson (1990: 207), allow the gathering of reliable and valid data, relatively in a short time. Questionnaire is a widely used and useful instrument for collecting information, providing often numerical data, being able to be administered without the presence of the researcher (Cohen, 2007). It provides the most appropriate kinds of data to answer the research purposes.

**Table: 2. Number of questionnaire administered**

Colleges	Trainees 10 + 2 program(Regular)			Questionnaire distributed		Questionnaire returned	
	M	F	Total	No.	%	No.	%
A) Entoto TVET college Industrial / Construction field	329	11	340	68	20	68	100
B) Wingate TVET college Industrial/ Construction field	259	6	265	53	20	53	100
Trainers in Entoto TVET	196	--	196	39	20	20	51
Trainers in Wingate TVET	80	--	80	16	20	10	63
<b>Total</b>				<b>55</b>		<b>30</b>	

The questionnaire was constructed consisting of different components. The first part is intended to obtain personal information about the respondents. The second part consists of educational background and the third part deals with the possible school related barriers to female's participation in industrial /construction fields and various information regarding the influence of gender stereotyping of subjects and occupations, which could be obstacles for female participation in industrial/construction fields.

Out of 55 instructors, 30 instructors correctly filled and returned the questionnaire. In case of students and department heads, all the questionnaire distributed was correctly filled and returned.

### **3.4.2 Interview**

Semi-structured interview was used because it is flexible that allows new questions to be brought up during the interview as a result of what the interviewee says. It also can help to gain additional information that cannot be catered through other instruments (Denzin, 1994). According to Best (2006), the

purpose of open-ended interviewing is not to put things in someone's mind but to access the perspective of the person being interviewed. In general, interviews are used to gather information regarding an individual's experiences and knowledge, his or her opinions, beliefs and feelings.

Semi-structured interviews lie between the structured and unstructured types. They contain elements of both, with some being closer to structured interview, and others closer to unstructured ones. The degree to which interviews are structured depends on the research topic and purpose, resources, methodological standards and preferences and the type of information sought, which of course is determined by the research objective (Sarantakos, 2005).

Semi-structured interview contains a number of open-ended questions. Interview questions were prepared in English. But for the purpose of clarity, interview was conducted in Amharic.

Vice dean of Wingate TVET college mentioned that there is one counselor. Therefore, he suggested that the staff will increase in the future.

The interviews were conducted with deans, vice deans and vocational counselors regarding participation of the female trainees in the two TVET Colleges.

### **3.5 Data Collection Procedures**

Before the actual administration of questionnaire, a pilot testing was made to check if there are some modifications to be done. Subjects in the pilot testing were 10 male and 10 female regular trainees from industrial/construction fields. In addition to that, 6 instructors were included in the pilot testing. The questionnaire was prepared in English. However, based on the observation and the information obtained from the pilot testing, questionnaire which was prepared for trainees was translated into Amharic. The pilot testing took place in the same college.

During the main study, first, the document analysis has been done followed by administration of questionnaire. Then, interview was conducted after some days and this can give the chance for the researcher to raise questions from the preceding instrument as well as to gain additional information that cannot be gathered through the other instruments. Furthermore, this helped to triangulate the responses.

### **3.6 Document Analysis**

By requesting the data from the registrar office of the colleges, the enrollment of male and female trainees across different departments of business and industrial/construction fields have been collected. This is done to obtain information regarding the rate of female participation in each college under study. The data was intended especially to observe the gender disparity in industrial/construction streams.

Number of graduates during the last three years from two colleges was secured. This was done for each stream to identify the pattern of achievements of male and female trainees in both training. This information was intended to analyze the performance of female trainees compared to their male counterparts.

### **3.7 Data Analysis and Management**

The data collected through the closed-ended items of the questionnaire and the data collected from the documents were analyzed quantitatively using quantitative method. Percentage and t-test statistical methods were employed for data analysis. Especially, t-test was used to check if there is any difference between the industrial/construction and business fields trainees' responses. Whereas the data collected from the open-ended questions of the questionnaire and the interview were analyzed using qualitative descriptions.

## CHAPTER FOUR

### Presentation, Analyses and Interpretation of Data

The main purpose of this study was to compare females' participation and performance in industrial/construction and business fields of study and identify factors that affect them in these fields. Entoto TVET and Wingate TVET Colleges were taken as the sources of the data.

This chapter covers the analysis of data gathered through questionnaire, document analysis and interview. The data gathered using different instruments, were analyzed by applying t-test and percentiles.

#### 4.1 Characteristics of Trainee Respondents

To obtain some information regarding trainees' background, items were related to trainees back ground were asked. Each item was summarized as follows:

**Table: 3. Male and Female Trainees' subject preference up to grade 10.**

Types of respondents	Natural Science		Social Science		No response	Total
	M	F	M	F		
Industrial trainees in Entoto TVET college	32	4	18	7	7	68
Industrial trainees in Wingate TVET collge	17	3	25	3	5	53
<b>Total</b>	<b>49</b>	<b>7</b>	<b>43</b>	<b>10</b>	<b>12</b>	<b>121</b>

As shown in Table 3, in Entoto TVET College, 32 male and 4 female respondents have preference for natural science subjects while 19 male and 7 female respondents preferred social science subjects. In the case of Wingate TVET College, 17 male and 3 female respondents preferred natural science while 25 male and 3 female respondents preferred social science subjects.

While comparing industrial/construction trainees' background in the two colleges, more trainees in Entoto TVET College had preference for natural science subjects than trainees in Wingate TVET College:

Regarding the age of trainees, the obtained information shows that 114 respondents are within the age of 16-20, while 7 are between the ages of 21-25. In Wingate TVET Collage. The data shows that the minimum age limit of trainees in technical and vocational streams is 16 and the maximum is 25. From this information it can be deduced that due to the maturity level of trainees while selecting their career, (at the age of 16), they need guidance and counseling to make the right choice of field.

## **4.2 Document Analysis Regarding Enrollment and Achievement**

### **a) Enrollment**

The overall enrollment of trainees in Entoto TVET College and Wingate TVET College from 2001-2003 E.C. has been observed. This was done to observe the enrollment pattern between the two areas of study namely; industrial/construction and Business stream and to investigate gender disparity particularly in industrial/construction field of study.

There are different fields which are offered in industrial/construction and business streams in the two TVET colleges under study. Trainees assigned to each stream are distributed across these departments. The total number of trainees enrolled in the two streams in each college from 2001-2003 E.C. is as follows.

**Table: 4. Total Enrollment of Trainees in 10+<sup>2</sup> Regular Program by Stream  
2001-2003 E.C**

Year	TVET	Industrial /Construction					Business				
		M	%	F	%	Total	M	%	F	%	Total
2001	Entoto	401	76.2	125	23.8	526	263	37.1	445	62.9	708
2002		446	80.5	108	19.5	554	204	39.7	310	60.3	514
2003		481	79.1	127	20.9	608	216	30.4	494	69.6	710
	<b>Total</b>	<b>1,328</b>	<b>78.7</b>	<b>360</b>	<b>21.3</b>	<b>1,688</b>	<b>683</b>	<b>35.4</b>	<b>1,249</b>	<b>64.6</b>	<b>1,932</b>
2001	Wingate	309	74.5	106	25.5	415	141	28.9	347	71.1	488
2002		351	71.9	137	28.1	488	105	22.4	364	77.6	469
2003		431	79.2	113	20.8	544	145	26.2	408	73.8	553
	<b>Total</b>	<b>1,091</b>	<b>75.4</b>	<b>356</b>	<b>24.6</b>	<b>1,447</b>	<b>391</b>	<b>25.9</b>	<b>1,119</b>	<b>74.1</b>	<b>1,510</b>

Source: Registrar Office of Entoto and Wingate TVET Colleges.

The need to assess the total enrollment of trainees from 2001-2003 E.C in the two colleges was to observe the trend in the enrollment of female and male trainees and see whether or not there existed gender disparity in industrial/construction area of study. The enrollment data office indicates 1328 (78.7%) male and 360 (21.3%) female trainees in Entoto TVET College, 1091 (75.4%) male and 356 (24.6%) female trainees in Wingate TVET College in industrial/construction fields.

#### **4.2.1 Sex Distribution across Departments in Industrial/Construction Stream**

To identify the course choice pattern of the two sexes in the last three years, it is important to look at how the total male and female were distributed among the different fields in industrial/construction areas in the two colleges.

**Table: 5. Sex Distribution of Enrollment across Industrial /Construction Fields (2001-2003) E.C**

Department	Entoto TVET College					Wingate TVET College				
	Male		Female		Total	Male		Female		Total
	No	%	No	%		No	%	No	%	
Building Electrical Installation	45	100	-	-	45	123	94.6	7	5.4	130
Surveying	93	94.9	5	5.1	98	134	88.7	17	11.3	151
Drafting	58	72.5	22	27.5	80	120	71	49	29	169
Road Construction	42	95.5	2	4.5	44	167	75.2	55	24.8	222
Automotive	234	94.4	14	5.6	248	76	73.1	28	26.9	104
General Metal Fabrication and Assembly	70	84.3	13	15.7	83	70	76.1	22	23.9	92
Furniture Making	20	100	-	-	20	48	96	2	4	50
Carpentry Joinery	28	77.8	8	22.2	36	24	50	24	50	48
Masonry	47	74.6	16	25.4	63	58	68.2	27	31.8	85
Industrial Electrical Machine Drive	94	94.9	5	5.1	99	91	84.3	17	15.7	108
Audio Video Electronics	36	76.6	11	23.4	47	98	72.6	37	27.4	135
Concrete	88	81.5	20	18.5	108	36	78.3	10	21.7	46
Plumbing	32	72.7	12	27.3	44	20	76.9	6	23.1	26

Source: Registrar Office of Entoto and Wingate TVE Colleges.

The data shown in Table 5 discloses the following:

- The percentage of female enrollment within industrial/construction stream shows that in Entoto TVET colleges, more female trainees were enrolled in drafting field, which is 22 (27.5%). A field which has more female trainees in Wingate TVET College is carpentry joinery which is 24 (50%).
- There is no female trainee in Entoto TVET College in building electrical installation and furniture making fields. The least number of female trainees in Wingate TVET College is in building electoral installation field with only 7 trainees. There is also a least number of female trainees in Wingate TVET College in furniture making field, which is 2 (4%).
- A field which has the least number of female trainees in Entoto TVET is Automotive which is 14 (5.6%). However, this field is the one that highly attracted more male in Entoto TVET College which is 234 (94.4%).

- Another field which has more female trainees in Wingate TVET College is road construction which is 55 (24.8%). In addition, in Wingate TVET College, only 6 (23.1%) female trainees participated in plumbing.
- The other field which has the least number of female trainees in Entoto TVET College is Industrial Electrical Machine Drive which has 5 (5.1%) trainees. However, this field is the one that highly attracted more male trainees which is 94 (94.9%).
- Few female trainees in Wingate TVET College enrolled in Surveying which is 17 (11.3%) where as more male are attracted in this field which counts 134 (88.7%).

This finding confirms Ogunleye's (2006) view which states that feminine occupations pay less income and have less status when compared to engineering and architecture.

However, from the overall enrollment of trainees in the two colleges in 10+2 regular program, additional enrollment pattern can be observed. Even though it is not the main concern of this particular study, it is of interest to see the pattern of field choice of female and male trainees in business stream (See Table 6).

The percentage of female enrollment within business stream shows that in both colleges relatively more female trainees were enrolled in secretary field, which is 120 (100%) in Entoto TVET College and 39 (100%) in Wingate TVET College. On the contrary males were not enrolled in the secretary field. More females participate in secretary field because there is high job opportunity for females than males.

A field which has the least number of male trainees in Entoto TVET College is Human Resource management which has 10 trainees. However, this field is the one area that highly attracted more females in both colleges.

A field which has the least number of male trainees in Wingate TVET College is transport operation that count 7 (20%), whereas this field is the one that highly attracted more female trainees which is 28 (80%) it appears that the activities note more concentrated in towns. This might have attracted the females.

Other fields which have the least number of male trainees in Wingate TVET Colleges are Food preparation and Hair Dressing which have 4 trainees in each field. However, Food preparation and Hair Dressing are the areas that highly attracted more female trainees which are 43 (91.5%) and 26 (86.7%) respectively. Females are more interested in preparing food and hair dressing. Therefore, more female student participate in these fields.

The least number of male trainees in Wingate TVET Colleges is Food and Beverage service which has 2 trainees, whereas more female trainees were attracted by this field, which is 15 (88.2%). Another field which has the least number of male trainees in Entoto TVET College is Front Office Service, which has 9 trainees, whereas more female trainees were attracted by this field, which is 85 (90.4%).

The three years data, in the two colleges show that the number of male trainees who joined some fields of study like secretarial, hairdressing and cooking appear to be insignificant.

#### **4.2.2 Analysis of Females' Success in Industrial/Construction fields**

This study intends explanation regarding the performance of female trainees in their respective fields of study. In order to answer this question, assessing the success or achievement of trainees in their study is vital. By success or achievement in this research is meant successful completion of the program and obtaining the required certificate. For this purpose, the number of graduates in each field of the two major streams in the two colleges was collected. Based on this, the magnitude of females' success in both major training areas was compared with that of males' to check the difference between the achievements of the two sexes.

Table 7 shows the figure of the two sexes who graduated from the two main fields in 3 years time in the two TVET colleges. With simple observation, it can be seen that in the industrial/construction field, the number of female graduates in Entoto TVET College and in Wingate TVET College is 318 and 193 respectively. However, number of male graduates, which exceeds females at a higher rate, is 1052 and 989 in the two colleges respectively.

On the other hand, the data obtained regarding the number of graduates from business stream discloses the reality of different patterns from that of industrial/construction. The wide gap between male and female graduates in the field is indicated 1141 and 1034 females and 650 and 302 males who graduated from Entoto and Wingate TVET Colleges respectively. This shows that the number of female graduates in business fields is higher than males whereas in industrial/construction field is very low.

To declare the level of performance of female trainees in detail, analyzing total enrolment in line with the number of graduates was found to be essential. To this end, by taking the total enrolment of trainees in both streams into account, achievement difference between male and female trainees has been examined in the two streams. The next table illustrates the result.

**Table: 8. Sex combination of total enrollment and graduates (2001 - 2003 E.C.)**

College	Enrollment and graduation in industrial/ construction fields								Enrollment and graduation in Business fields							
	Male				Female				Male				Female			
	Enrolled		Graduated		Enrolled		Graduated		Enrolled		Graduated		Enrolled		Graduated	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Entoto	1328	78.7	1052	76.8	360	21.3	318	23.2	683	35.4	650	36.3	1249	64.6	1141	63.7
Wingate	1091	75.4	989	83.7	356	24.6	193	16.3	391	25.9	302	22.6	1119	74.1	1034	77.4

Table 8 indicates the relationship between the total enrollment and number of graduates in each stream. Comparison has been made between the number of male and female trainees in both streams. According to Table 8, from the total number of industrial/construction graduates in Entoto TVET College, 76.8% appeared to be males while 23.2% were females. This indicates that most female trainees do not participate in industrial/construction field.

Likewise, from the total graduates of Wingate TVET College in industrial / construction field 83.7% are males and 16.3% are females. In the case of business, from the total graduates of Entoto TVET College 36.3% appeared to be males while 63.7% are females. From Wingate TVET College total business graduates 22.6% are males and 77.4% are females.

However, the level of females' performance in industrial/construction area is less than female graduate in business fields. While observing male graduates they are less than females in business area, whereas males dominated fields they are high achievers. This could be due to low interest and giving less attention towards female towards business fields.

### **4.3 Information from Interview**

Semi-structured interview was conducted in Amharic with deans and vice deans and vocational counselors (all male), regarding participation and performance of female trainees in TVET Colleges.

On the questionnaire, lack of orientation program is one of the factors which affects females' participation in industrial/construction field.

According to most interviewees response, the main reasons as to why most females do not join the industrial/construction field of study are lack of orientation about the field and lack of self-confidence. These could be taken as the most hindering factors. Besides, most of them are not sure of getting a job.

To solve the above problem, one of the interviewee said:

*Providing orientation program in high schools regarding TVET and the nature of different fields offered in colleges is essential. This gives insight and creates awareness in selecting their future career in industrial/construction field of study (March 9, 2011).*

The weakness of guidance and counseling service in TVET colleges and in high schools is also mentioned by some of the interviewees as one of the hindering factors for females' participation in industrial/construction fields. As most interviewee mentioned, awareness creation and guidance and counseling for students particularly in grade 9 and 10 could play an important role in selection of fields.

For the questions, which asks the level of female's participation in industrial/construction field, one of the interviewee responded thus:

*Textile and garment department is one of industrial/construction field, nowadays, many female students participate in this field. In addition to this, many female students participate in drafting field (March 10, 2011).*

In Wingate TVET college, one of the interviewee mentioned that, orientation program is conducted twice a year. The first orientation program is conducted at the beginning of the year and the second orientation program at the beginning of second semester.

According to most interviews response, orientation program is essential, because female students can develop self confidence and participate in industrial/construction fields.

For question concerning the performance of those females who joined the industrial/construction field, the reply from most interviewee confirm that once females joined industrial/construction field, they are committed to their duty.

Regarding problems of physical strength of females, one of the interviewee said, “In General Mechanic, most of the activities are done with machines. Therefore, providing physical fitness training is essential for females students” (March 10, 2011).

**Table: 9. Perception of Trainees in industrial/construction field**

Rank order by industrial /construction trainees								
Variables	1 <sup>st</sup>	%	2 <sup>nd</sup>	%	3 <sup>rd</sup>	%	4 <sup>th</sup>	%
Interest for the field	78	64.5	14	11.6	3	2.5	7	5.8
Available of job opportunity	24	19.8	61	50.4	7	5.8	5	4.1
Parental influence	1	8	10	8.3	59	48.8	18	14.9
Peer influence	3	2.5	4	3.3	21	17.4	60	49.6

For the case why they choose their present field of study, industrial/construction trainees were asked to rank the proposed possible reasons. As illustrated in table 8, out of 121 respondents, 78 (64.5%) indicated that “interest for the field” is their first ranking reason to join the field.

Regarding the second ranking reason, 61 (50.4%) respondents gave rank two for the reason, “to get job soon”. From this information it can be inferred that since most of them have joined the field with interest, and assumed to be employed immediately after completing their training, they are motivated to do assignments on time and are expecting good result from their training. Their family acceptance to the field also contributes a lot for their success.

According to 3<sup>rd</sup> choice 59 (48.8%) respondents agreed that parents influence their children to choose industrial/ construction field.

In the 4<sup>th</sup> chose, 60 (49.6%) respondents agreed that there is peer influence to choose industrial/construction field.

### **Reason for Most Females not to Join Industrial/Construction Fields**

To confirm the assumption “Most female do not join industrial/Construction field of study”, the respondents were asked to show their choices in rank order.

**Table: 10. Reasons for most Females not to join Industrial/Construction Field**

<b>Rank order by Industrial /Construction field</b>										
<b>Variables</b>	<b>1<sup>st</sup></b>	<b>%</b>	<b>2<sup>nd</sup></b>	<b>%</b>	<b>3<sup>rd</sup></b>	<b>%</b>	<b>4<sup>th</sup></b>	<b>%</b>	<b>5<sup>th</sup></b>	<b>%</b>
Lack of interest for the field	57	47.1	13	10.7	8	6.6	8	6.6	3	2.5
Fear of job opportunity	13	10.7	44	36.4	12	9.6	10	8.3	10	8.3
Lack of self-confidence	8	6.6	15	12.4	50	41.3	12	9.9	3	2.5
Low 10 <sup>th</sup> grade result	13	10.7	8	6.6	10	8.3	46	38	10	8.3
Lack of female role models	1	0.8	8	6.6	9	7.4	7	5.8	60	49.6

According to the information obtained, 57 (47.1%) respondents agreed that most females do not join industrial/Construction field because of lack of interest of the field.

However, from the total response it can be seen that the majority of respondents have agreed on the statement.

There are different causes which force female trainees not to focus on their study. For instance “lack of self confidence” could be due to weak vocational guidance service in schools and colleges. Out of 121 respondents, 50 (41.3%)

respondents agreed that most female do not join in industrial/construction field because of lack of self confidence.

In addition, 46 (38%) respondent agreed that low 10<sup>th</sup> grade result affect most females not to join industrial/construction fields. If grade 10 result is low, females could not join the industrial/construct field.

Out of 121 students 60 (49%) respondents agreed that lack of role models affects females' participation in industrial/construction field. If there are female role models, this will encourage female students.

**Table: 11. Perception of Trainees on student-related factors**

Statistical Tests Analysis of Variance (ANOVA) for Student -related factors

Items	No	Mean		SD		F-Value	P-Value
		M	F	M	F		
Less effort by female students in studying	121	<b>3.63</b>	3.71	1.46	1.38	2.65	<b>0.07</b>
Low interest of female to technical fields	121	3.54	<b>3.78</b>	1.42	1.31	1.27	<b>0.28</b>
Poor high school background	121	<b>3.52</b>	<b>3.42</b>	1.26	1.21	1.32	<b>0.27</b>
Low self-confidence of females students	121	3.59	3.50	1.39	1.34	1.18	<b>0.30</b>
Lack of physical strength	121	3.62	3.67	1.24	1.26	2.54	<b>0.08</b>

P- value is significant at 0.05 confidence interval.

As Table 11, depicts regarding students' related variables, the average response is between 3.52 and 3.63 for males and 3.42 and 3.78 for females respectively. The difference for all students related factors is not statistically significant at 95 (p>.050 confidence interval). The P-values are 0.07, 0.28, 0.27, 0.30 and 0.08, and these figures are greater than P (P>0.05).

As illustrated in the Table 11, all results of responses are rated above the average mean. From the five items, "less effort by female students" is rated high.

This signifies that “less effort by female students” is one of the major factors that affect the performance of female trainees.

Low self-confidence of female students” and “low interest of female to technical fields” are the second major factors which force female trainees not to focus on their study. This could be due to weak vocational guidance service in colleges.

**Table: 12. Response of trainees regarding family related factors**

No	Items	No	Mean		SD		F-Value	P-Value
			M	F	M	F		
1	Lack of parental moral support	121	<b>3.55</b>	4.00	1.43	1.35	1.20	<b>0.30</b>
2	Low educational background of parents	121	3.46	3.85	1.29	0.68	0.80	<b>0.45</b>
3	Low expectations of parents about female performance in technical field	121	<b>3.44</b>	<b>4.2</b>	1.32	1.02	1.71	<b>0.18</b>
4	Low income of parent	121	3.50	<b>3.78</b>	1.20	1.62	0.97	<b>0.38</b>

P-value is significant of 0. 05 confidence interval.

As illustrated in Table 12, the average response for family-related factors, appears to be between 3.44 and 3.55 for males and 3.78 and 4.2 for female respondents respectively. All P values are 0.30, 0.45, 0.18 and 0.38 and these figures are greater than P ( $P > 0.05$ ). This shows that female respondents seem to agree to the parents related factors as compared to males. However, it has no statistically significant difference at 95% confidence ( $p > 0.05$ ) interval. “Lack of parental support is also one of the major factors that affect the performance of female trainees.

As to the researcher’s view, reason for families low expectation could be lack of awareness to females performance and capability to do things equally as their male counterparts.

**Table: 13. Response of Trainees on institute related factors**

Items	Mean			SD		F-value	P-Value
	No	M	F	M	F		
Lack of textbook	121	3.77	4.07	1.42	1.54	7.39	<b>0.001*</b>
Lack of support from the college management	121	3.25	3.92	1.22	1.20	4.55	<b>0.012*</b>
Lack of orientation program	121	3.25	4.14	1.44	1.23	3.05	0.051
Lack of guidance and counseling service	121	3.36	3.28	1.46	1.58	1.93	0.150
Lack of health service	121	3.36	3.21	1.29	1.57	2.35	0.099
Trainees field of placement is not according to their choice	121	4.12	4.21	1.33	1.31	3.71	<b>0.027*</b>

P-value is significant of 0.05 confidence interval.

As indicated in Table 13, “lack of textbooks” is one of the institute-related factors. Textbooks are the important inputs for teaching-learning process. Some trainees could not do their assignments on time due to lack of textbooks.

On the other hand, comparing institutional related factors among the six factors mentioned on the table, lack of textbook, lack of support from the college management and placement of trainees without their choice are statistically significant ( $p < 0.05$   $n = 121$ ).

Department heads also explained the absence of separate latrine for male and female trainees. The absence of this facility affects, especially females in their training. Trainers from Wingate TVET College mentioned the problem of health service in their response for an item in the institute-related factors. Regarding guidance and counseling service, three department heads in Wingate TVET College affirmed its availability. Regarding other facilities, like, library,

workshop, electricity, water and classrooms, their response shows their availability.

**Table: 14. Degree of Response regarding Female participation in industrial/construction field**

Item	Degree of Response	Frequency	%	Valid percent
Females can participate equally as males in industrial/construction field	Strongly disagree	3	2.5	2.5
	Disagree	9	7.4	7.4
	Undecided	12	9.9	9.4
	Agree	30	24.8	24.8
	Strongly agree	66	54.5	54.5
	No Response	1	0.8	0.8
<b>Total</b>		<b>121</b>		

As shown in Table 14, out of the 121 respondents, 66 (54.5%) respondents agreed on the statement “females can participate equally as males in industrial/construction field. Most respondents disagree with the assumption of restricting females from participation in traditionally male dominated areas of study.

**Table: 15. Perception of Trainees in industrial/ construction field**

No	Items	Strongly disagree		disagree		undecided		agree		Strongly agree		No response	
		No	%	No	%	No	%	No	%	No	%	No	%
1	It is better if female students participate in industrial/construction field rather than business fields	6	5.0	4	3.3	7	5.8	16	13.2	87	71.9	1	.8
2	Females can be equally as males in industrial/construction field	3	2.5	9	7.4	12	9.9	30	24.8	66	54.5	1	.8

As indicated in Table 15, out of 121 respondents 87(71.9%) respondents agreed with the statement “female participation is important in industrial/ construction field of study”. Participation of females in industrial/construction fields can contribute to economic development. This goes in line with Durando and

Wastiau (2008) view that as scientific and technical skills are essential to bring change towards the economy of a nation, it is important to participate females in different scientific and technological fields. This implies that female can be trained in industrial/construction fields and their contribution is important to the development of a country's economy.

In Table 15, out of 121 respondents, 66 (54.5%) respondents agreed with the statements “females can do equally as males in industrial/ construction field”. From this information, equal performance of females in technical or construction area can be affirmed.

**Table: 16. Response of trainees on the effort of female trainees in doing assignments**

<b>Items</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid percent</b>
Females apply equal effort as male in doing assignments	64	52.9	52.9
Female apply less effort than males in doing assignments	39	32.2	32.2
Female apply more effort than males in doing assignments	5	4.1	4.1
It is difficult to decide	10	8.3	8.3
No response	3	2.5	2.5
<b>Total</b>	<b>121</b>	<b>100</b>	<b>100</b>

As illustrated in Table 16, out of the total 121 respondents 64 (52.9%) respondents agreed on the statement “females apply equal effort as male in doing assignment.

Out of the total trainees only 5 (4.1%) trainers agreed that females apply more effort than males.

Regarding the effort of females in doing their assignment, out of the 30 instructors in the two colleges, 15 of them responded that “females apply equal effort as males.”

**Table: 17. Reasons for female students to dropout from industrial/ /construction fields**

Rank order (by industrial /construction trainees )										
Items	1 <sup>st</sup>	%	2 <sup>nd</sup>	%	3 <sup>rd</sup>	%	4 <sup>th</sup>	%	5 <sup>th</sup>	%
Environmental factor	40	33.1	18	14.9	12	9.9	11	9.1	17	14.0
Health problem	18	14.9	43	35.8	14	11.6	18	14.9	5	4.1
Difficulty in the subject area	19	15.7	11	9.1	43	35.5	16	13.2	11	9.1
Economic problem	13	10.7	17	14.0	12	9.9	46	38.0	10	8.3
Lack of self-confidence	15	12.4	8	6.6	18	14.9	3	2.5	53	43.8

As indicated in Table 17, out of 121 respondents 40 (33.1%) of the respondents for “environmental factor” and 19 (15.7) of the respondents, gave “difficulty in the subject area” rank one. According to industrial/construction trainees these are considered to be first rank reasons for female students to dropout from industrial/construction field.

In the second ranking reasons for these groups of respondents appear as “health problem” to be conformed by 43 (35.8%) and “economic problem” by 17 (14.0%). This is totally as perceived by trainees who have already joined the field.

#### **4.4 Possible Solution Suggested To Improve Females Participation In Industrial /Construction Fields**

After having identified problems and verified the existence of obstacles to females' participation in industrial /construction fields of study, proposing possible solutions appears to be one of the major issues of this research. Some of the solutions are giving guidance to trainees, making an effort to change society's negative attitude towards females' performance in industrial /construction fields and providing tutorial classes.

## CHAPTER FIVE

### Summary, Conclusion and Recommendations

#### 5.1 Summary

##### a. Enrollment

- Total enrollment data shows that there is a wide gender disparity in the enrollment in industrial/construction fields. The gender gap is almost similar in both TVET colleges. This reflects the fact that females are underrepresented in industrial /construction fields of study. In the case of enrollment in business stream, females are more than male trainees.

##### b. Distribution of Trainees Across Industrial/ Construction

###### Departments, by Sex:

- The percentage of female enrollment within industrial/construction stream shows that in both colleges, relatively more female trainees were enrolled in drafting field, which is 22 (27.5%) in Entoto TVET College and 49 (29%) in Wingate TVET College. On the other hand, there is no female trainee in building electrical installation (Table 5). Due to lack of self - confidence, therefore, females refrain from participating in traditionally male dominated area has highly attracted male trainees;

##### c. Females' Success

- Result of the study shows that females are doing well in the traditionally female dominated area of studies. When compared to males, female trainees are low achievers in areas which are traditionally set as males' domain;

The number of female graduates in Entoto. TVET College and in Wingate TVET College is 1141(63.7%) and 1034 (77.4%) respectively whereas, 650 (36.3%) and 302 (22.6%) males who graduated from Entoto and Wingate TVET Colleges (Table 7).

**d. Perception of Trainees Regarding Obstacles Affecting Females' Choice of Career:**

- **Teachers-related obstacles:** Information obtained indicates shortage of teachers' advice to trainees on what to study their course as one of the obstacles;
- **Student-related obstacles:** as indicated in table 10, not giving much attention by females in studying is taken by 57(47.1%) of trainees as obstacle.
- For instance, lack of self confidence is taken by 50 (41.3%) of the trainees as obstacle. Lack of self-confidence could be due to weak vocational guidance service in colleges.
- Institution related obstacles: In Wingate TVET College, lack of safety in the college environment to study late in libraries and assistance from college administration is mentioned as main obstacle;

**e. Solution suggested by trainees:**

- Giving guidance and counseling to students and trying to change societies attitude are taken as first rank solutions while giving tutorial class is ranked as a second solution;

**f. Perception of Trainers Regarding Different Factors Affecting Females' Participation**

- **Student-related factors:** Less effort by female trainees is ranked high by trainers to be obstacles for females' performance;
- **Instructors-related factors:** In their response trainers agreed on lack of female role models as major obstacle. Lack of instructors' advice is ranked least, which has been ranked high by trainees;
- **Institute-related factors:** Placement of trainees out of their choice and lack of guidance and counseling are high ranked obstacles.

- **Parent-related factors:** Parents' favor male's training and parents' low expectation to females' performance in technical fields are indicated as high ranked obstacles. Trainers responded that fear of social acceptance is also taken as main cause.
- **Possible Solutions suggested by trainers:** Giving guidance and counseling for trainees and performing awareness creation activities to change the attitude of the society, are among the high ranked solutions to improve female participation in industrial/construction fields of study.

## **5.2 Conclusions**

Based on the major findings obtained from the research, the following conclusions were drawn:

- From the overall enrollment in three years time in the two public TVET Colleges under study, there is a pronounced gender disparity in industrial/construction field of study. Hence it can be concluded that the traditional male dominated and female-dominated occupations are still widely practiced in the enrollment of trainees to technical and vocational areas;
- Females are high achievers in business field than males, but low in industrial/construction fields. This implies that lack of guidance and counseling as well as lack of self-confidence; among female trainees hindered them from achieving better in the industrial/ construction fields’
- Lack of adequate guidance and counseling service was among the problems students faced in the TVET colleges. Hence, it can be inferred that it contributed to low enrollments of females in industrial fields.

## **5.3 Recommendations**

Based on major the findings obtained from the study and conclusions drawn. The following points are recommended.

1. The Addis Ababa TVET agency should develop strategies to pave the way for students to select their future career, guidance and counseling service in every high school. The objectives and duties of vocational guidance and counselor in high schools as well as in TVET colleges/institutes should be clearly defined;
2. According to the information obtained from the instructors’ female trainees have less self confidence to participate in industrial/construction field of study. To develop their self confidence and male them able to

participate in male dominated fields, guidance and counseling service is expected to play a decisive role;

3. The Addis Ababa TVET agency should develop different strategies, such as motivating interest towards industrial/construction areas and promoting female role models are very helpful to encourage female students to participate in industrial/construction field of study.
4. To attract female students to Natural Science and Technology, special programs should be designed. For example, organizing various programs like, Females in Natural Science and Technology, Females and Computer Science, etc. has to be practiced to initiate the interest of females, to help them realize their potential and bring about a change in the development of a country.
5. Instructors in the studied TVET Colleges should have the motive to encourage and advise female trainees on how to study and understand the courses in technical fields, so that they can be successful.
9. To facilitate the smooth running of training in TVET Colleges, textbooks, clinic and separate latrine for males and females have to be adequately available. Safety of the college environment should be assured to ease the trouble of female trainees while studying late in library.

## BIBLIOGRAPHY

- African Economic Outlook. (2008). **Brief History of the Evolution of Technical and Vocational Skills in National and International Agendas.**
- Alhassen, E. (2010). Ghana Journal of Development Studies. Vol.7 No.1 (2010). (African Journals Online).
- Allasebu G/Selassie. (1988). **The Situation of Women in Ethiopia: A Review: A report to the UN Inter- Agency Group.**
- Anderson, Gary. (1990). **Fundamentals of Educational Research.** New York: The Falmer Press, Taylor and Francis Inc.
- Best, Jphn W. (2006). **Research In Education.** Tenth Edition. Boston: Pearson Education Inc.
- Chabaud, J. (1970). **The Education and Advancement of Women.** Paris: UNESCO.
- Cohen, Louis. (2000). **Research Methods in Education.** 5<sup>th</sup> ed. London: Published by Routledge Falmer. //New Father Lance.
- Cohen, Louis. (2007). **Research Methods in Education,** Sixth Edition. New York: Taylor and Francis e-Library.
- Denzin. Norman K. (1994). **Qualitative Research.** London: SAGE Publications.
- Durando, P. Wastiau. (2008). **Women in Information Technology in Europe.** London: Publication based on document 2293.
- Ellis, Patrica. (1990). **The Impact of Training on Women's Micro – Enterprise Development – Education.** Research Paper No. 40. Paris: ILO.  
[http://www.norrag.org/issues/article/89/en/bibliography-on-vet.](http://www.norrag.org/issues/article/89/en/bibliography-on-vet)

- Finch and Crunkilton. (1999). **Curriculum Development in Vocational and Technical Education**. 5<sup>th</sup> Edition. Boston: Allyn and Bacon.
- Genet Zewdie. (1991). **Women in Primary and Secondary Education. Gender Issue in Ethiopia**. Addis Ababa: A.A.U., IES.
- Gyimah. Charles. (2008). **Women's Participation In Local Government In Ghana. The Case of the Nadowli District of the Upper Region. Studies in Gender and Development In Africa, (2008)** Ghana: University of Development Studies Nyankpola.
- Kane, Eileen. (1995). **Seeing for Your Self**. Research Handbook for Girls' Education in Africa . The International Bank for Reconstruction and Development/the World Bank. Washington D.C.: 20433. Manufactured in the United States of America.
- King, E.M and Hill, M.A. (1993). **Women's Education in Developing Countries: Barriers, Benefits and Policies**, Baltimore: The Johns Hopkins University Press.
- King, E.M. (1990). **Educating Girls and Women: Investing in Development**, Paris: UNESCO.
- Lasonen, Johanna. (2005). **Education and Training In Ethiopia. An Evaluation of Approaching Education For All Goals**. Institute of Educational Research. Finland: Jyvaskyla University Press.
- Lodico, Marguerite G. (2010). **Methods in Educational Research**, Second Edition. San Francisco: John Wiley and Sons, Inc.
- Mibilinyi and Mbughuni's. (1991). **Girls and Schools in Sub-Saharan Africa**. Tanzania: Farlex, Inc.
- MOE. (1995). **Some Considerations on Girls Education**. Addis Ababa: Women's Affairs Department of MOE.
- (2002). **The Education and Training Policy and Its Implementation**. Addis Ababa: MOE.

- Montgomery, Susan. (1996). **Undergraduate Women In Science and Engineering**. The Center for Research on Learning and Teaching. USA: The Michigan University.  
[http:// www. \(rlt. Edn/Publinks \(CRLT-no8\)](http://www.rlt.edn/publinks(CRLT-no8)).
- Oghuvlu, Enamiroro Patrick. (2008). **Absenteeism and Lateness**. Among Secondary School Students.  
[http://www. Academic leadership. Org.](http://www.academicleadership.org) December 7, 2010.
- Ogunleye, T.O (2006). **Success Anxiety, Job Ability Perception and Social Interaction Among Women in Male Dominated Professions**. 'Implications for Counseling.' Lagos: An Unpublished Ph.D. Thesis. University of Lagos.
- Punch, Keith F. (1994). **Introduction to Social Research**. Quantitative and Qualitative Approaches. New Delhi: SAGE Publications.
- Sarantakos, S. (2005). **Social Research**, Third Edition. New York: Palgrave Macmillan Division of ST. Martin Press.
- Schronder, Carla. (2004). **Attracting Women Into Computer Science**. India.  
<http://ingoos.com/blog/inside.injoos/2010/02/20women-in-the-indian-it-alley>.
- Seyom Tefera. (1986). "The Education of Women in Ethiopia. A Missing Piece in Development Puzzle". The Ethiopian Journal of Education Vol.10, No.1. Addis Ababa.
- Sing, S. and R. Sumara. (1996). **Early Marriage Among Women in Developing Countries, In International Family Planning Perspectives**, Vol. 22, No.4 December.
- Teshome Nekatibeb. (2002). **Low Participation of Female Students in Primary Education: A Case study of Dropouts from the Amhara and Oromia Regional States in Ethiopia**. Addis Ababa: UNESCO International Institute for Capacity Building in Africa.

Wanna Leka. (1999). Non-Formal Education in Ethiopia. An Overview of the Current Situation. Proceedings of the National Conference on the Situation of Non-Formal Education in Ethiopia. Addis Ababa: A.A.U. University Printing Press.

**Appendix A**  
**Addis Ababa University**  
**College of Education**

**Department of Business Education**  
**Management of Vocational Education**

**Questionnaire for TVET College Instructors and Department Heads in  
Business Streams and Industrial /Construction Fields**

**Dear Respondents**

This questionnaire is designed for the purpose of studying the factors affecting female participation in industrial/construction field of study in TVET program. The result of the study is expected to indicate problems related to female students participation and performance in the above mentioned fields, which will help to provide some suggestions or recommendations on how to overcome the problems.

**Thank you for your cooperation!**

**Direction**

- No need of writing your name
- Put a (✓) mark in the box or circle the number of your choice among the given alternatives.
- Your prompt reply is appreciated.

**1. Background Information**

1.1 Name of the college you are working in

\_\_\_\_\_

1.2 Department \_\_\_\_\_

1.3 Your present position (instructor, department head)

\_\_\_\_\_

3. How do you evaluate the following factors as affecting the academic performance of female trainees in individual/construction areas? Please indicate the level of your agreement or disagreement.

**Strongly Agree (5), Agree (4), Un-decided (3), Disagree (2)  
Strongly disagree (1)**

Statements	5	4	3	2	1
<b>Student Related Factors</b>					
Less effort by female students in studying					
Low interest of females to technical fields					
Poor high school background					
Stress during exam					
Low self confidence of female students					
Lack of physical strength					
<b>Instructors Related Factors</b>					
Lack of female instructors as role models					
Lack of instructors support					
Low expectation of instructors for females ability in their study					
Instructors' poor educational background					
<b>Institutional Related Factors</b>					
Lack of textbooks/ reference materials					
Lack of support from the college management					
Lack of orientation program					
Lack of guidance and counseling service					
Trainees field placement is not according to their choice					
Lack of health service					
Difficulty to study for long hrs in the evening in libraries due to problems of safety					
Lack of workshop facilities					
<b>Parent Related Factors</b>					
Lack of parental moral support					
Low educational background of parents					
Low expectations of parents about female performance in technical fields					
Parents favor males training than females					

4. What should be done to improve female's participation and performance in technical fields? Please rank the following possible solutions in their ranking order.

**Strongly Agree (5), Agree (4), Un-decided (3), Disagree (2)**  
**Strongly disagree (1)**

Possible Solutions	5 <sup>th</sup>	4 <sup>th</sup>	3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>
Give clear vocational guidance and counseling of registration					
Provide tutorial classes					
Provide adequate awareness creation orientation					
Advise on how they should study					
Advise on how they do project works					
Provide workshop faculties					
Encourage female students while they ask/answer questions					
if there is additional please specify _____ _____ _____					

5. In your opinion how do you evaluate the performance or achievement of female trainees compared to males in the following fields/ subjects?

Fields	High	Average	Low
Metal /GM			
Automotive			
Electronics			
Construction			

6. How do you see the effort of female trainees in doing assignments?  
 put a (✓) make in front of your choice.

\_\_\_\_\_ a. Females apply less effort than males in doing assignments.

- \_\_\_\_\_ b. Females apply equal effort as males in doing assignments.  
 \_\_\_\_\_ c. Females apply more effort than males in doing assignments.  
 \_\_\_\_\_ d. It is difficult to decide.

7. From your observation, females ask questions in the classroom,  
 a) More frequently    b) Frequently    c) Undecided  
 d) Rarely    e) Not at all

8. In your opinion, what are the reasons for most female students not to choose industrial/construction fields? Please indicate your agreement or disagreement on the following factors.

**Strongly Agree (5),    Agree (4),    Un-decided (3),    Disagree (2)  
 Strongly Disagree (1)**

<b>Statements</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Lack of interest for the field					
Fear of job opportunity					
Lack of self-confidence					
Fear of social acceptance					
Lack of role models.					
Lack of facilities in the Collage					
Lack of work shop facilities					

If others, please specify \_\_\_\_\_

6. How do you evaluate the effort of female trainees in doing assignments? Circle the letters of your choice among the given alternatives.

- a) Females apply equal effort as males in doing assignments.
- b) Females apply less effort than males in doing assignments.
- c) Females apply more effort than males in doing assignments.
- d) It is difficult to decide.

7. From your observation, females ask questions in the classroom.

- a) More frequently
- b) Frequently
- c) Undecided
- d) Rarely
- e) Not at all

8. What should be done to improve female's participation and performance in technical fields? Please rank the following possible solutions in their ranking order.

**Strongly Agree (5), Agree (4), Un-decided (3), Disagree (2)**  
**Strongly Disagree (1)**

Possible Solutions	5 <sup>th</sup>	4 <sup>th</sup>	3 <sup>rd</sup>	2 <sup>nd</sup>	1 <sup>st</sup>
Give clear vocational guidance and counseling service					
Provide tutorial class					
Provide adequate awareness creation orientation					
Advise on how they should study					
Advise on how they do project works					
Provide workshop facilities					
Provide physical fitness training					
Encourage female students while they ask/answer questions.					
If others, please specify _____ _____ _____					

## **Appendix C**

### **Interview questions for deans, V/deans and vocational counselors**

The purpose of this interview question is to find out the factors for the under representation of female trainees in industrial/construction field of study. Besides, it is assumed to help in directing possible solutions for problems encountered by female trainees.

1. What is the participation level of female students in industrial/construction area in your college compared to their male students counterpart?
2. What factors do you think should be done by the society to encourage female students' participation in industrial/construction fields?
3. To What extent do you know that female students do not choose technical field of study?
4. How do you evaluate female students' performance in industrial/construction area?
5. Do you think the role of females in industrial/construction area is helpful for economic development of a country
6. What do you suggest; parents of girls can do to encourage their children study in industrial/ construction fields?
7. What measures do you think should be done by the society to encourage female students' participation industrial/construction fields?
8. What should be the role of schools to facilitate females' participation in industrial/ construction fields?