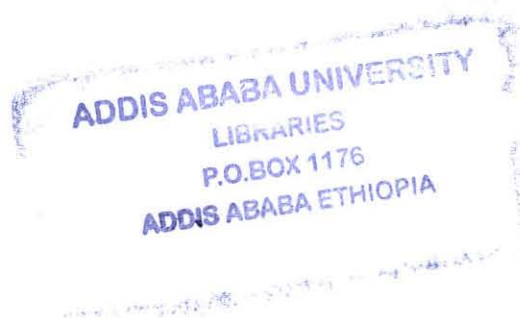


ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF FACTORS AFFECTING EMPLOYMENT
SITUATIONS FOR BUSINESS STREAM REGULAR PROGRAM
GRADUATES OF ENTOTO TECHNICAL AND VOCATIONAL
EDUCATION AND TRAINING COLLEGE

BY
AHMED YIMAM



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ABSTRACT

This study was designed to assess the factors affecting employment situations of business stream graduates of Entoto TVET College. The study was undertaken in Addis Ababa, by taking business stream graduates of Entoto TVET College. The major sources of data for the study were 208 graduates, 20 employing organizations, 3 deans of the college, 3 guidance officers of the college, and one official from education bureau of Addis Ababa. Responses were categorized and inserted in to the SPSS and then frequency count, percentage, weighted mean, rank order and T-test were employed. The results of the study generally revealed that large number of graduates were unemployed. Moreover very small numbers of graduates were self-employed and employed in different sectors. Lack of labor market information and vocational guidance service for graduates were observed. It was identified that the main causes of graduates unemployment were 1) constraints in finance, 2) lack of confidence and management ability 3) the loose connection between employing organizations and the college, 4) limitation in practical skills, and above all absence of labor market information system. The points recommended were, providing financial support schemes for graduates to encourage self-employment, enable trainees to develop self-confidence, strengthening the relation between employing organizations and the college, and provision of labor market information for trainees.

CHAPTER ONE

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Education and economic development are closely related. Economic development of a country, among other things depends on the availability of trained work force. On the other hand, when the economy of a certain country develops, the education sector will have a chance to promote its activity in scope and content due to institutional and financial support (Yekunoamlak, 2000:13).

People argue that education system corresponds with the economic structure, its relationship with the economic development strategies and the role it plays in producing a skilled and viable workforce. This implies that a more educated people are more productive and would have the attitudes and behaviors necessary for sustained industrialized economy. (Derebssa, 1997:9)

It may be difficult to increase the wealth of a nation without improving the quality of education. However, academic education is not enough for rapid and continuous social and economic changes. To this effect,

grown at a fast pace and is expected in the future projected to double over the next twenty-five years. Berhanu (2005:3) further noted that, urbanization has grown over the past two decades, as the proportion of population living in urban areas increased from about 11 percent in 1984 to 16 percent in 2005.

In view of high rate of unemployment, parallel to general academic education, job oriented vocational training programs will contribute to minimize joblessness. In order to bring a significant impact in the community way of life, networking between vocational program and working life is essential.

According to Abosetegna (2000:4), considering the current Ethiopian situations related to employment, many new graduates from the institutions of TVET are unable to obtain employment immediately after graduation. Therefore, identifying the factors that affect the employment situation of TVET graduates are an important step in the process of producing skilled work force. From this perspective, this study attempts to answer the following major questions.

- 1) What is the employment situation of business stream graduates of Entoto technical and vocational education and training college?

- 2) What are the factors that affect employment opportunities of graduates?
- 3) What mechanism should be developed in order to make vocational education more responsive to the labor market?
- 4) In view of competitive labor market, which of the fields of training program provide more chance of job placement for graduates?

1.3 SIGNIFICANCE OF THE STUDY

The relation between education and development has been recognized. This means that the more a country invests in education, the more valuable to the development of human capital and the more will benefit the country in economic development (Derebssa, 1997:10). Therefore, vocational training programs should be relevant and responsive to the demand of labor market. To this effect, the issue of matching vocational training with employment is very sensitive and equally important.

The study thus, is significant for the following reasons:-

- The study will help to examine the state of employment situation of graduates in order to determine the efficiency of vocational training program of Entoto technical and vocational education and training college.

- The study will give some information to educators in general, and the management of the college in particular about graduates' employment situations.
- It will provide policy makers with an insight to look again the TVET policy that is currently being implemented.
- It helps to arouse the curiosity and interest of future researchers for further investigation.

1.4 PURPOSE OF THE STUDY

Researches are often carried out using specific objectives. Bearing this in mind, this study was intended to:

- ✓ Describe the nature and characteristics of employment situation and occupational guidance service in Entoto technical and vocational education and training college.
- ✓ Examine the relationship existing between the training and employment situation, in order to see the efficiency of the training program in terms of employment opportunities up on the completion of the study.
- ✓ Make possible suggestions for further investigation in order to address the other problems in relation to the occupational information.
- ✓ Recommend possible mechanisms (ways) of alleviating the problems that the new graduates will encounter as

they look for employment market following the completion of their study.

1.5 DELIMITATION OF THE STUDY

Large number of skilled work force is joining the labor market each year and out of those school leavers higher proportions of them were suffering from the problem of unemployment. To this end, the study seeks to investigate the dominant factor affecting employment situations of TVET graduates with specific reference to Entoto TVET College. This is because the college was one of the experienced institutions in vocational education graduated large number of trainees than the equivalent college in Addis Ababa.

Moreover the study was delimited to business stream regular program graduates of the college. The reason is that, as a novice researcher, the researcher could not handle all graduates of the different departments and the graduates of extension program were excluded because it was assumed that they already had a job.

Further more, the study was more delimited to the grade levels of 10+1 and 10+2, and the year 2004 and 2005. This was because the first 10+3 program graduates were graduated in the year 2006 and

the year 2004 was the beginning year of the implementation of the new TVET curriculum.

1.6 LIMITATIONS OF THE STUDY

As stated earlier graduates of Entoto TVET College are suffering from the problem of unemployment. Analyzing the factors affecting employment situations of graduates is a series issue that requires urgency. However, due to such constraints as-shortage of time, supportive materials for research, money, transportation service, and telephone service, this study could not investigate all the contributory factors to graduates unemployment.

In addition, as a novice researcher who lacks rich experience in controlling irrelevant variables that may find their way in to the results of the study, the conclusion reached, and recommendation made may not be comprehensive, exhaustive and free from any form of deficiency.

Despite these limitations, the study is hoped to shed some light on the problem of TVET graduates unemployment through the creation of awareness of factors affecting TVET graduates.

1.7 DEFINITION OF TERMS

Apprenticeship- A business link system substantially carried out within an undertaking and regulated by statutory law or custom according to oral or written contract which imposes mutual obligation on the two parties concerned: the apprentice and normally an employer who has assumed responsibility for giving initial vocational training for the apprentice for a recognized occupation. UNESCO, (1978:39-40)

College: - an institution of higher education usually offering a curriculum in the liberal arts and science and empowered, have confer degree or diploma or associated titles. Good, (1973:30)

Employment: - is any remunerative work, whether for an employer or as self employed or job. UNESCO, (1978:72)

Employment situation: - is the condition that TVET graduates are employed in formal sector or self-employed (informal sector) or unemployed in the economy.

Informal Sector: - a person is considered to work in the informal economy when he/she is engaged in a business or enterprise that does not keep book of account, has less than 10 workers, has no business/enterprise license and

2.1. HISTORICAL DEVELOPMENT OF VOCATIONAL EDUCATION

The origin of vocational education in its informal form is started when man began to live together and started to produce for his basic needs. The primitive people probably used the digging sticks, stone, axes, and fire to clear the vegetation for hunting and gathering their food supply (Abramson in Yekunoamlak 2000:11). Then after it is predicted that the need for mass production (hunting) beyond their daily consumption necessitate using other tools of hunting and required the preparation of tools other than stones and axes.

With the passage of time ancient people gradually learned to use fire to cook and melt metals to produce tools. Consequently, these skills necessitated division of labor unlike doing every thing available in the earlier time (Yekunoamlak, 2000:11). Later on the increased demand for goods led to a great demand for the mass production of skilled man power, as a result the new skill transferring mechanism was emerged. The transfer of skill from one person to another started when the father delivers to his son and mother to her daughter (Evans, 1971:9). This was the period were known by scholars the delivery of the informal vocational education system was started.

One of the principal arguments for vocational education is that it is a social necessity. In theory and in fact, it represents an individual's

According to World Bank (1991:20), the tradition of transferring skill by the master-the trainer to apprentice continues in North and West Africa and to a lesser extent in Latin America. Through apprenticeship individuals can acquire the broad range of practical and business skills necessary for self-employment.

The World Bank report (1991:20) further noted that, traditional apprenticeship can have a positive effect on employment and earnings, poor and rural individuals can benefit. Although traditional apprenticeship had many benefits, it also had limitations. The masters mostly pass on their skills and knowledge to apprentices; but they rarely create new knowledge. The absences of any formal instruction favor acquisition of practical skills vital to production, sales, and management but limits theoretical understanding.

In addition apprentices learn enough for commercial survival but not enough to improve productivity significantly (World Bank, 1991:23). The effect of apprenticeships on the economy is limited by the number of masters willing to take on apprentices and by the number of apprentices that masters are able to absorb effectively (World Bank, 1991:23). With the strong point and limitations traditional apprenticeship was used as the major way of skill transferring method.

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2.2.1. Technical and Vocational Education for Self Employment

Self-employment and TVET are inseparable. This is because TVET is a system of transferring skill and knowledge that are essential for world of work in general and for self-employment in particular. In our country also, the major objective of TVET is to prepare trainees to equip with skills and knowledge for self employment and entrepreneurship.

The proclamation of TVET in Ethiopia also states that "The purpose of middle level technical & vocational education & training program is to prepare middle level skilled manpower in various trades" (MOE, 2003:8).

King (1985:29-34) stated that self-employment schemes came to the scene so as to complement the informal sector (IF). Berhanu (2005:24) defined informal sector as "a person is considered to work in the informal economy when he/she is engaged in a business or enterprise that does not keep book of account, has less than 10 workers, has no business/enterprise license and works at least four hours a week."

The informal sector encompasses activities ranging from working in subsistence agriculture or petty production at street corner to the creation of small enterprises. Accordingly vocational training for self-employment is carried out with the objective of empowering young people to create their own jobs in the formal and informal sector. In general it is

believed that youngsters are sent to TVET institutions to be on their own (King, 1985:29-23).

2.2.2. Vocational Training and the Labor Market

The mismatch between demand in skilled labor force and supply of trained workforce is presented in labor market information system. Thus, vocational education has to address the need to the work environment because social and economic progress can no longer be contemplated in the absence of rigorous, consistent policies to improve and up date technical and vocational education (UNESCO, 1990:13).

According to UNESCO (1990:16) the development of skilled man power is largely influenced by some of the following major factors:-

- ♦ The change in the general education structure
- ♦ The growth of management and
- ♦ The impact of information technology

UNESCO (1990:16) further noted that, a change in information technology directly relates to a change in labor market information. The current trend of TVET programs are molded by a change in the demand of the market. Therefore, vocational education should be seen in light of labor market information.

Table I

World unemployment report

Region	Unemployment Rate per % in 2003
World	6.2
Latin America and Caribbean	8.2
East Asia	3.3
South east Asia	6.3
South Asia	4.8
Middle East and north Africa	12.2
Sub-Saharan Africa	10.9

Source: ILO, World employment Report, 2005

As the table shows, the unemployment rate in the world varies in different regions. North Africa and Sub-Saharan Africa are parts of the African continent with the highest unemployment rate observed and East Asia is a region with the lowest unemployment rate. In relation to statistical data on graduates' unemployment, there is no documented fact that supports. But in general it is found that graduates unemployment was high in developing countries than developed nations (ILO, 2005:90-98).

2.3.2. The Major Causes of Graduates Unemployment

The problem of unemployment is not a variable that are affected by a single phenomena and cannot also be solved by a change in a single variable. As it is noted by King (1985:28-29), in most countries TVET has become a very important aspect of human resource development. Abosetuge (2000:23) added that, within the framework of national training and education strategies TVET is planned to contribute to develop scientific and technological culture, facilitate graduate transition from school to work and provide citizens training which prepare them for employment; enhance the living standard of individuals and promotion of professional skills so as to improve status.

Moreover, Evans (1971:16) stated that one of the factors for graduate unemployment is the probable effect of education causing youth want to work only in occupation which has better working conditions.

He added that the major causes of youth unemployment and graduate unemployment's are:

- The effect of minimum wage laws
- The increased supply of job seekers and
- The effect of education.

In looking other causes of unemployment Wana laka, in Amara Asgedom and others (1998:34) that TVET systems in most African countries have contributed little to solve the prevailing employment problem. Numerous criticisms have been articulated over the past decades, such as poor quality of training program, training not well matched to actual socio-economic realities, inattention to the informal sector needs and the labor market.

2.3.3 Mismatch between job Expectation and Job Opportunities

According to UNESCO (1990:17), technological and vocational education is a key factor in socio economic development. Education programs must be developed which anticipate and meet society's needs and all students following vocational and technical courses will need to be trained to learn and study independently.

The traditional assumption that initial education will serve a life long career of professional work is no longer tenable. UNESCO, (1990:17) stated that the new technology demands the teaching of new science and engineering concepts, applications, and implementation of technological change requires frequently changes in courses and curricula.

According to Simmons (1986:1-8), graduates at all levels have encountered increasing difficulty in finding jobs when they anticipate originally. According to him, the central educational issues to the problem are categorized in to:

- 1) In efficiency within the education system which can be measured by illiterate graduates
- 2) Mismatch between what the educational institutions are producing and what employers, citizens, and parents (stakeholders) needs and
- 3) Inequality in the distribution of educational opportunities and results to rural and urban cities.

It is also further identified by Atchoarena (2002:38) that, job opportunities for TVET graduates have changed and become more uncertain as the focus has shifted to the formal and informal private sector. Enterprises have more specialized requirements concerning the qualifications of the work force, and this entails a redefinition of TVET.

2.4 LABOR MARKET INFORMATION SYSTEM

Responsive training policy requires more often accurate, regular and up to date labor market information and socio economic trend analysis. According to Yekunoamlak (2000:18), labor market information system (LMIS) is very important information tool, which provides a timely data

2.5.3 A Change in Technology

Technological development is the fastest force that shapes our destiny. According to UNESCO (1990:16), during the past two decades, it is witnessed dramatic technological innovations, especially with respect to information and communication technologies (ICT). The change in technology and industrialization has growing impact in determining labor market information. As labor market information is one of the determining factors in graduates' employment opportunity.

The world of work and a change in technology has unspeakable link in today's environment. The vocational education, which aimed at producing people for the world of work, has a lot to do with a change in technology.

2.5.4 Expansion of Informal Sector

According to World Bank (2001:16) the concept of the "informal sector" relates to the notion of non-participation in tax systems, in social security systems, and meeting regulatory requirements. This non-participation can be the result of legitimate exclusion from policy parameters or from non-compliance.

The report of World Bank (2001:17) also added that, the informal sector is typically seen to include three types of people: micro entrepreneurs, self-employed, and employees operating in informal -sector firms or in informal employment arrangements within registered firms.

According to World Bank (2001:17) measuring informal employment is difficult, due to different definitions and data limitations. As a consequence, it is often not possible to get a good hand on the size and the growth of the informal sector. Many establishment surveys also often over look small informal sector operators leading to a downward bias in the measurement of the sector. Furthermore, more reliable indicators are often available only on the urban informal sector-the rural informal sector is more difficult to capture.

Thorough study has to be made in providing the necessary information in the informal sector, because the expansion and contraction in the informal sector has a direct impact on the available labor market.

2.6 EXPLORING OCCUPATION INFORMATION

Exploring occupational information is obtaining information regarding the field of study for trainees to choose the field of study. There are many reasons why appropriate choice is important and why factors about job

2.8 THE EVALUATION OF VOCATIONAL EDUCATION

Evaluation is meant to measure the progress of a plan, a process or activity. Abramson and others in Yekunoamlak (2000:27) defined evaluation as " the process of delineating, collecting and providing information useful for judging decisions and alternatives." The program of TVET in any country has to be evaluated continuously with the standard objective.

The major purpose of evaluation in vocational training is improving the decisions made by the three concerned bodies or sponsors- government, employer and the individual. As mentioned by Yeukunoamlak (2000:28), there are two types of evaluation identified in vocational training- pre training evaluation and post training of the trainees' performance.

The pre-training evaluation deals with the survey of job markets and skills requirement for a particular job. Post-training evaluation on the other hand, is conducted at the end of the training and it has the following components: self-evaluation by the trainees, an onsite visit by an external evaluation team and by the employer (Yeukunoamlak, 2000:28-30).

According to Tishio (1987:255) there are naturally many factors involved in economic and industrial development of Japan. However, when the major role fulfilled by technological innovation in the industrial development is taken in to consideration, the contribution made by technical education, especially by advanced technological education must be stressed.

The writer (1987:257) further noted that, the salient aspect of technological education, which helped to Japan's industrial development up to the present consist of the following three points:

- 1) Sudden quantitative expansion of technological education
- 2) Adaptability of technological education to technological innovation and
- 3) In-service technological training.

Tishio (1987:257) also added that, one of the major reasons taken by the government that contributes to the fast today's development of the country is the harmonization of educational system with the innovation of technology. Japan's technological education succeeded in coping with new situations in a relatively short period of time. In addition to increasing the number of students in conventional specialized fields, measures were taken to create new departments, lectureships and

research offices. In the interim, new courses and curricula were successively established.

Further more, Tishio (1987:258-260) added that, in a study of technical education and industrial development, the role-played by in-service education and training is important. It can be said that persistent efforts made by enterprise in the form of continued education and retraining functioned decisively in raising the standard of Japan's industrial activity.

In general the combined implementation of TVET with the objective of technological innovation and other structural change in the education system has contributed to the development of the country.

Lessons Learned from Japan

Even though it is clear that Ethiopia and Japan have difference in population, economic condition and other facts, there are important policy changes and strategies that Ethiopia can learn from Japan.

The points that Ethiopia can learn from the practice of Japan that can contribute to the development and growth of the country are:

- 1) The quantitative expansion of vocational education by taking in to consideration the quality. This is to mean increasing the number of TVET institutions, and the number of individual that

will be enrolled in the institutions by considering the facilities, qualified trainers... etc.

- 2) Adapting technological education in TVET systems with the provision of resource, i.e. - directing the objective of TVET education towards the innovation of new technologies that help to the growth of the agriculture sector towards industrialized economy and
- 3) The provision of intensive in-service technological training to those who need, this implies that the provision of technological transformation has to be provided for trainers, industrial workers ...etc.

2.9.2 Technical and Vocational Training and Employment in Ghana

Ghana is one of the West African countries. Ghana has a population of some 19 million people, of whom around 60% live in the rural areas and some 40% are estimated to be below the age of 15. The country has currently registered 1,793 USD per capita incomes in the population (Wekipdia, 2005:1-18).

According to ILO (2002:25) Ghana was one of the first countries in Africa to adopt structural adjustment policies (starting in 1983). Multiple

economic reform programs supported by international monetary fund (IMF) and World Bank have, although slowly and at significant social costs, assisted to reverse the economic decline of the country.

Recovery has been strongest in the main export sub-sectors (mining and cocoa). From the different reforms that are initiated by the world bank, to enhance the development of the country, modifying the education system in general and vocational education in particular was the major ones (ILO,2002:25).

ILO further noted that, accelerated vocational and technical training is stated to be one of the pillars of the recent draft of Ghana poverty reduction strategy, which also focuses on agricultural reform and rural transformation, are development of agro-industries and promotion of the private sector (ILO, 2002:23).

Further more, ILO (2002:39)noted that, vocational skill and informal sector support project set out by world bank to promote a demand-driven system that responds to the need for short- term training of those employed in the informal sector are one of the reforms taken by the country.

In this respect the reform is aimed to change the focus of vocational training institutes away from the provision of long; per-employment training, towards the provision of short, post-employment, competency-based training especially for informal sector operators.

Lessons Learned from Ghana

The core experience that Ethiopia can learn from the practice of Ghana in vocational education and its role in the development of the informal sector are:-

- 1) Harmonizing the vocational course with the informal sector to encourage graduates to involve in self-employment. In dealing with pre need analysis and a continuous adjustment of the TVET education system has to be made.
- 2) Supporting the informal sector through apprenticeship, on the job training and non formal TVET programs. This is to mean that, in addition to the formal TVET program the non formal technical and vocational training should be provided to groups of individuals who could not join the formal institution and engaged in the informal sector.
- 3) Developing informal sector support project; through formal and non formal method of delivery of education, the technical and

vocational program training support have to be provided for peoples engaged in the informal sector of the economy.

2.9.3 Employment and Unemployment in Ethiopia

As stated by Brhanu (2005:23), the Ethiopian Population growth has resulted in an annual addition of about 2 million members to the labor force. Over the subsequent decade the size of the labor force increased, reaching an estimated 32.2 million people in 2005, with an annual average increase of 3.2 per cent.

With such condition unless the demand for labor concomitantly expands, such fast growth in the supply of labor force exacerbates the inadequate employment situation in the country.

2.9.3.1 Background of Unemployment in Ethiopia

According to Berhanu (2005:5), the Ministry of Labor and Social Affairs (MOLSA) and the Ministry of Youth, Sport and Culture (MOYSC) deal with the issues of employment and youth employment, respectively. The ministry of youth, sports and culture created the national youth policy in March 2004, defining youth as individuals aged 15-29. Thus, youth includes those aged 25-29 in addition to the youth age bracket defined by the united nation (UN) (15-24 years).

Berhanu (2005:5), further noted that, the unemployment condition of youth prevailing in Ethiopia was 4.9 % in the year 1994 and 9.0% in the year 1999.

2.9.3.2 The recent Trends of Employment and Unemployment Statistics

Berhanu (2005:24-25), the Ethiopian labor market is characterized by more than 80 per cent of the total labor force is employed in subsistence agriculture. A relatively small increase in productivity and a shift towards industry was observed after the reforms of the early 1990s.

Berhanu (2005:24), further added that, the labor force has grown at a fast pace and is expected to do so in the future. In addition, employment levels vary strongly by location, gender, education and age. Excluding people engaged in subsistence farming and those working in private households, a quarter of all employed individuals were employed in the formal sector while nearly three-quarters of the population were employed in the informal economy in year 1999.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Methodology

As mentioned earlier, the main purpose of the study was to investigate the factors that affect employment situation of graduates. To this end, the method employed was descriptive survey method, because it allows the investigator to explore a wide range of factors. In addition, the method is relevant and appropriate for depicting the status of the current condition of employment situation of TVET graduates.

Moreover, the following population and sample, data collection instruments and procedures, and data analysis techniques were applied during the study.

3.2 Sampling Techniques

In the study a sample of graduates and employing organizations were considered. Concerning employing organizations nearly more than 100 organizations which asked the college with letter to hire the graduates were referred in the records of the college. From those, 20% of organizations were selected using simple random sampling method.

In relation to graduates, the total number of graduates in the aforementioned TVET College in the 10+1 and 10+2 program in the two years (2004 and 2005) was nearly 1043. In addition, all the six fields of the study in the business stream were considered to be included in the study. In sampling plan, simple random sampling methods were employed to select samples from the population. The size of the samples was 20% of the population, 208 graduates were selected.

The samples from each field of specialization and years were taken in the following manner.

Table II

Distribution of Sample graduates and field of study

Streams	2004 graduates		2005 graduates	
	10+1 program	10+2 program	10+1 program	10+2 program
Accounting	16	19	5	20
Purchasing Supplies & Fright clerk	5	16	--	10
Marketing and Salesmanship	7	8	--	12
Banking and Insurance	--	17	--	9
Secretarial Science	5	12	4	8
Information Technology	6	15	4	10
Total	39	87	13	69
Grand total	208			

3.3 Major Source Of Data Collection

The data for the study were obtained from both primary and secondary sources. In the secondary source of data, relevant books, journals, universal declarations and legal documents that reflect the employment situation of graduates in developing as well as developed countries were referred. In addition the data of the number of trainees graduated in the year under study and background of the college was obtained from the documents in the college.

CHAPTER FOUR

4. DATA PRESENTATION ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data gathered from the sample graduates of Entoto TVET College, employing organizations, Dean's, guidance officers and Officials of Addis Ababa Education bureau. The data obtained through questionnaire and interviews were analysis and interpreted.

Out of the total of 208 questionnaires distributed to graduates of the college, 181(87%) were filled and returned. On the other hand, from 20 questionnaires distributed to government and non-government employing organizations 18(90 %) were filled and returned.

In order to substantiate and accentuate the data collected from the two groups of respondents, the opinions of 7 interviewees were processed and injected in to the body of the analysis and interpretation.

Based on the responses obtained from the sample respondents, the analysis and interpretation of the data are presented following each table.

In relation to sex, 61(33.7 percent) of graduates were male and 120(66.3 percent) were female. Moreover, from the interviewed officials almost all the officials (Deans, Vice deans, guidance officers and officer from the Addis Ababa education office) were male. This implies that larger number graduates of business Stream of Entoto TVET College were females and in relation to position of higher officials, females were less positioned.

With regarded to the age composition of graduates, the majority 166(91.7 percent) of graduates were in the age range of 15-25. Similarly in the case of interviewees (Deans, Vice deans, guidance officers and officer from the Addis Ababa education office) the majority of the interviewees were 36 years old and above. As to the finding of the age profiles of graduates, they were in their young age and the majority of interviewees were in the middle age category.

In relation to year of completion of graduates, 99(54.7 percent) were graduates of the years 2004 and 82(45.3 percent) were graduates of the year 2005. This reveals that, the number of graduates in business stream of the declined in the year 2005. The possible reason for the decline of the number of graduates may be the 3 fields of study- Banking and Insurance, Salesmanship, and Purchasing and Freight clerk did not accept 10+1 graduates in the year 2005.

Concerning the level of graduates and educational qualifications of higher officials, 39(21.5 percent) graduates were 10+1 level and 142(78.5 percent) graduates were 10+2 level certificates awarded. This indicates that in their level of completion of graduates significant difference was observed. The cause for this may be the smaller number of graduates graduated in 10+1 level. Moreover, regarding the educational qualification of interviewees, 4(57.1 percent) were first degree holders and 3(42.9 percent) were holders of second degree. In relation to interviewees, all the respondents involved assumed territory level education with the shown educational level. The respondents were expected to have a good level of awareness of the problem encountered by graduates in terms of employment and labor market information.

this belief, one can infer that accounting was a field of study with a high number of graduates and with larger number of employment opportunity for graduates under the period of study. And on the other hand, Banking and Insurance was the least in both number of graduates and employment opportunity.

Table V

Owner of employing organizations

Item	Employing organizations	
	No.	%
Organizations who have hired graduates of the college?		
Government	4	22.2
Non Government	14	77.8
Total	18	100%

Source: Survey data 2007

In relation to ownership of employing organizations, the majority, 14(77.8 percent) of employing organizations were non-Governmental organizations and only 4(22.2 percent) were governmental organizations. This shows that the high proportions of employers of graduates were non

governmental organizations. This relates with one of the objective of TVET in the country to fill the required labor market.

4.2 THE EMPLOYMENT SITUATION OF GRADUATES

As different research works reveal that the cause to unemployment is not a single factor. The economic condition of a country, the quality of education and others are the major ones. As noted by Bose and others, in Abosetegna (2000:64), the major cause of unemployment problems are associated with the absence of the relation between TVET institutions, employing organizations and labor market information system. In connection with the above finding, the data secured from the graduates of the college, employing organization, higher officials of the college and education office are presented and discussed below.

Table VI

Current status of graduates

Item	No.	%
Current status of graduates		
Self employed	14	7.7
Employed	42	23.2
Unemployed	125	69.1
Total	181	100%

Source: Survey data 2007

With regard to employment status of graduates, 125(69.1 percent) were unemployed, 42(23.7 Percent) of graduates were employed and the remaining 14(7.7 percent) of respondents were self-employed. The responses of officials also supports that, from the informal information what they had most of graduates of the college were unemployed. The data indicates that the majority of graduates were jobless.

Table VII

Time Spent by graduates in hunting for a job

Item	Graduates	
	No.	%
For how long have you been unemployed?		
Less than 6 month	10	8
6-12 month	28	22.4
1-2 years	59	47.2
2-3 years	22	17.6
More than 3 years	6	4.8
Total	181	100

Source: Survey data 2007

Concerning the time spent by graduates in hunting jobs the majority of graduates, 59(47.2 percent) spent 1-2 years, 28(22.4 percent) spent from 6 month to one year, and 22 (17.6 percent) 2-3 years. This reveals that the majority of graduates wasted more than 2 years in hunting jobs.

Table VIII

Length of time graduates had since employment

Item	Graduates		Employing Organizations	
	No	%	No	%
How long have you been employed/employing graduates				
Less than 6 month	16	38.1	-	
6-12 month	12	28.6	3	16.6
1-2 years	11	26.2	7	38.8
2-3 years	1	2.4	5	28.0
More than 3 years	2	4.8	3	16.6
Total	42	100	18	100

Source: Survey data 2007

Regarding the length of time graduates got employment opportunity, 16(38.1 percent) of graduates had served less than 6 month and 12(28.6 percent) of graduates had experience of 6-12 months and 11(26.2 percent) from 1-2 years. Moreover, the number of years of employing organizations experienced in hiring graduates of the college, 7(38.8percent) experienced 1-2 years and 5(28.09 percent) 2-3 years.

From the above figure and percentage one can understand that, the majority of graduates that are employed have served less than one year, and organizations less than three years. This is may be the problem associated with absence of awareness about the labor market by the college.

produced did not generate financial incentive from the sale of the product to motivate graduates.

4.3 FACTORS AFFECTING EMPLOYMENT OPPORTUNITIES OF GRADUATES

The factors that affect employment opportunities of graduates are innumerable ranging from the institution to the level of economic development of a nation. Wana laka in Amare Asgodom and others, mentioned that poor quality of training, training not well matched to actual socio-economic realities, and low attention given to the informal and labor market are some of the factors. But points that are raised by graduates employing organizations and higher official interviewee results are summarized and presented below.

Table X

Factors that determine opportunities of employment and self-employment

S.N	Item	Graduates	
		no	%
1	In your opinion which factor do you think has an impact in considering self-employment		
	In ability to acquire capital.....	91	54.5
	Lack of self-confidence and management ability	40	24.0
	Lack of training of self-employment	5	3.0
	Lack of security and regularity of earning	20	12.0
	Lack of national policy for self-employment	11	5.3
	Total	167	100%
2	If you are unemployed, in your opinion which factor do you think has an impact in getting employment opportunities of graduates?		
	Problem related with practical skills	38	30.4
	Financial constraints.....	86	68.8
	The field of study.....	1	0.8
Total	125	100%	

Source: Survey data 2007

The above table shows graduates' response to the major determinant factors for self-employment, 91(54.5 percent) graduates responded that in ability to acquire capital, and 40(24.0 percent) reacted as the lack of self confidence and ability in management. The idea of officials also supports that the inability of graduates being engaged in self-employment is due to the constraint of financial requirements. From this one can infer that lack of starting capital is the major constraint for self employment.

Item 2 of table X imparts factors that had an impact on employment opportunities of graduates. Accordingly 86(68.8 percent) of graduates responded that the major constraint of employment opportunity of graduates was determined by lack of finance and the remaining 38(30.4 percent) as a problem related with academic efficiency. The data implies that the two major constraints of employment of graduates were lack of finance and academic efficiency. This was may be a problem in financial institution and the college.

Table XI

Determinant factors of employment, self-employment or unemployment of graduates

Item	Graduates	
	no	%
Which of the following factors do you think determinant for being paid worker, self employment or unemployed?		
- Lack of financial source		
- Non availability of occupational information	66	36.5
- Rarity of employment opportunity	25	13.8
- In adequacy of training	84	46.4
	6	3.2
Total	181	100%

Source: Survey data 2007

Concerning the issues relating to the factors which are determinant for being a graduate to be paid worker, self employed, or unemployed, almost all graduates, 84 (46.4 percent) responded that it was rare that employment opportunity in the country, 66(36.5 percent) of graduates responded that and 25(21.8 percent) responded that it is due to non availability of occupational information. From this one can understand

that employment opportunities found in the country, lack of starting capital and the unavailability of occupational information are the most major determinant factors for graduates to engage in the private, government or self-employment sector.

Table XII

Rank order of factors of employment condition

S n	Item	Graduates	
		mean value	rank
1	Which of the following factors do you think are the most significant ones in determining employability of graduates		
	- Strengthening the relation between training and employing organizations	1.33	1
	- Increasing administrative and teaching capacity	3.82	4
	- Improving curriculum	2.45	2
	- Improvement in workshop facilities	2.88	3
	- Strengthening entrance requirement of trainees	4.45	5
2	In your opinion which factor is responsible for lack of labor market information-		
	- Weakness in the college	2.84	3
	- Unavailability of labor market information in the country	2.07	1
	- The policy problem that links TVET with labor market information system	2.11	2
	- Unavailability of concerned institutes	3.41	4
	- Unavailability of labor market advertising firms	4.53	5

Source: Survey data 2007

Key = Mean value= $\frac{w_1f_1+w_2f_2+\dots+w_5f_5}{F_1+F_2+\dots+F_5}$

F1+ F2....F5

Where W=weight given

F= frequency

Lower mean value is ranked "1" because respondents were asked to rank "1" for the best factor and "5" for the least factor.

Concerning the reasons for not to obtain enough information about graduates of the college, employing organization responded that the prominent factor were the unavailability of the link between TVET Institution and employing organizations, the problem associated with policy of TVET, and unavailability of responsible labor market information center, ranked 1-3 respectively. Interviewees of officials also agree that the link between TVET institutions and employing organizations were the most determinant factors of graduates' employment.

With regard to factors affecting the employment situations of TVET graduates, development of interaction among employers and training institution, the absence of the link between TVET institution and employing organization and training perusing traditional practice and

failure to up date training strategies and skills are the major problems ranked 1-3 by graduates.

Table XIII

Rank orders of determining factors of employment by employing organizations

S.N	Item	Employing organization	
		mean value	rank
1	If you do not find enough information about graduates of the college, which factors do think responsible?		
	- Weakness in the college	3.9	4
	- The unavailability of responsible labor market information center	3.45	3
	- The problem associated with policy of TVET	3.0	2
	- The problem associated with Media	4.18	5
2	- The problem associated with the link between TVET and employing organizations	1.54	1
	In your opinions which of the following factors do affect the employment situation of TVET graduates?		
	- Development of interaction among employers and training institutes	1.88	1
	- Improving career counseling service for trainees	3.27	4
	- Establishment of planned placement service	4.16	5
- Training programs perusing traditional training practice and failure to up date training strategies and skill components	2.94	3	
- The absence of the link between TVET institutions and employing organizations	2.44	2	

Source: Survey data 2007

The other Point presented to employing organizations were, what are the determining factors of employment opportunities of graduates, respondents responded that strengthen the relation between training centers and employing organization, improvement of curriculum, and improvement of workshop facilities were ranked 1 to3.

In addition employing organizations were asked to rank factors responsible for labor market information. Accordingly the unavailability of labor market information center in the country, the policy problem that links TVET with labor market information system and the weakness in the collage were ranked 1 – 3.

Table XIV Extent of agreement and disagreement of respondents

item	Graduates											Employing organizations											M.V	T- Test
	SA(1)		A(2)		U(3)		DA(4)		SDA(5)		M.V		SA(1)		A(2)		U(3)		DA(4)		SDA(5)			
The promotion of self employment opportunities, on the basis of progressive economic policy , is not being practiced in order to encourage the unemployed graduates	109	60.2	48	26.5	15	8.3	4	2.2	5	2.8	1.60	5	27.5	9	50	3	16.7	1	5.6			2.0	1.66	
The introduction of job oriented educational program and emphasis on traditional way of instruction is being exercised in order to make education more responsive to the demand of labor market	100	55.2	61	33.7	12	6.6	6	3.3	2	1.1	1.61	8	44.4	9	50	1	5.6					1.61	1.30	
Formal linkage among institutions of TVET, labor market and national policy for employment of graduates is non-existent in the country	93	51.4	53	29.3	12	6.6	12	6.6	11	6.1	1.86	4	22.2	10	55.6	2	11.2	2	11.2			2.11	1.58	
In order to facilitate a job search process for graduate job seekers, there is no a cooperative team approach to job placement operation among the representative of TVET and employer organization	111	61.3	54	29.8	4	2.2	8	4.4	4	2.2														

Source: Survey data 2007

Key

SA= Strongly Agree labeled "1"

A= Agree labeled "2"

U= undecided labeled "3"

DA= Disagree labeled "4"

SDA= Strongly disagree labeled "5"

Respondents were asked to assign "1" for strongly agree and "5" strongly disagree

$$\text{Mean value} = \frac{w_1f_1 + w_2f_2 + \dots + w_5f_5}{F_1 + F_2 + \dots + F_5}$$

Where W=weight given

F= frequency

Item 1 of table XIV reveals that the promotion of self-employment opportunities on the basis of progressive economic policy was not practiced in order to encourage unemployed graduates, 157(86.7 percent: mean value=1.6) graduates replied that they agree with the point. In relation to employing organizations, 14 (77.5 percent; mean value=2.00) respondents replied that they agree with the opinion. This revealed that the promotion of self employment was not practiced to encourage unemployed graduates to participate.

Item 2 of table XIV imparts that introduction of job oriented educational programs and emphasis on modern way of instruction is not being exercised in order to make education more responsive to the demand of labor market, 161(88.9 percent; mean value=1.61) graduates replied that they agree with the idea. In addition, employing organization to the point replied that 17(94.4 percent; mean value=1.3) of employing organizations replied that agree with the point. This showed that introduction of job oriented educational program by using modern way of instruction is not being practiced and institutions are using traditional method of instruction. This is may be lack of awareness of the labor market requirement.

To the third item that states formal linkage among institutes of TVET, labor market and national policy for labor market is non-existent, 146(90.71 percent; mean value=1.86) of respondents responded that they agree with the issue. In the case of employing organizations, 14(77.8 percent; mean value=2.11) of organizations replied that they agree with the point. This shows that no formal linkage is existed among institutions of TVET, labor market and national policy for labor market.

Moreover, for the above three point's further statistical analysis was employed to test the significance difference between responses of the two groups of respondents. The calculated T-value for the items are less than the table value ($T=1.74$). This implies that there is no significant difference between averages mean score of respondents.

With regard to the item four of table XIV, in order to facilitate a job search for graduates' job seekers, there is no cooperative team approach to job placement operation among the representative of TVET and employer organization, 165(91.1 percent) graduates replied that they agree with the point. This reveals that there was no a cooperative team work to job placement among the concerned parties. The main reason for the problem may be unavailability of concerned parties to create a link.

4.4 LABOR MARKET INFORMATION SYSTEM

The provision of labor market information before the placement of trainees is a mandatory issue. Points related with labor market issues are presented below.

Table XV

The extent of provision of labor market information

Item	Graduates response			
	yes		no	
	No.	%	No.	%
Have you received relevant information about future labor market information before you were admitted	39	21.5	142	78.5

Source: Survey data 2007

In relation to labor market information, graduates were asked whether they had got relevant labor market information about future labor demand before they join the college. Accordingly, 142(78.5 percent) respondents responded that they were not provided the information and 39(21.5 percent) of graduates replied that they had got. It is also agreed by officials that, trainees were not provided with the necessary labor market information which enables them to select marketable field of study. From this point one can infer that there was no labor market information given for graduates while they join the college.

4.5 VOCATIONAL GUIDANCE SERVICE

The importance of vocational guidance service to trainees of TVET has been mentioned by many researchers. It is clear that vocational guidance will provide necessary information for trainees about what to select and direction for where they want to reach. The question posed to graduates regarding the availability of guidance service was presented below.

Table XVI

Extent of provision of vocational guidance service

Item	Graduates response			
	yes		no	
	No.	%	No.	%
Have you received vocational guidance relating to your TVET placement?	38	21.0	143	79.0

Source: Survey data 2007

Concerning vocational guidance relating to placement of graduates, 143(79.0 percent) of graduates replied that they were not provided guidance service and 38(21.0 percent) replied that they were provided. The idea of the guidance officers and officials of the college agree that, graduates were not provided with vocational guidance service. This shows that most graduates were not provided the necessary vocational

guidance service which relates to their placement. This is may be the problem associated with the college.

4.6 MECHANISMS OF SOLVING GRADUATES EMPLOYMENT PROBLEM

With regard to the open ended questions, respondents were asked the mechanisms of solving the problem of graduates' unemployment. The majority of respondents replied that:-

- Strengthening the relationship of TVET institutions with employing organizations.
- Improving curriculum which enables graduates equipped with practical knowledge and
- Providing financial support were the major probable mechanisms to reduce the existing graduate unemployment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. SUMMARY

The purpose of this study was to investigate factors affecting employment situation of business stream graduates of Entoto TVET College the year 2004, and 2005. To this end, basic questions addressing the situation of graduates, factors affecting the employment opportunity, the importance of labor market information and vocational guidance were raised.

The method employed in the study was a descriptive survey, the respondents of the study were 181 graduates, 18 employing organizations, and 7 officials (Dean, vice dean, guidance officers and expert in education office). Regarding sampling technique employed, simple random was employed.

Information was obtained from these sample respondents through questionnaire, and interview, the data obtained was analyzed using, the package of SPSS- statistical package for social science, in percentage, weighted mean, ranking, t-test and graphs.

On the basis of the analysis made, the following major findings were obtained:

A) General points

1. Sex and age.

As the finding of the data indicates, more female trainees were enrolled in business stream of the college and females were less positioned in higher positions. Regarding the age of respondents, graduates were in their young age and interviewees were in the range of adult age.

2. Year and level of education

It was found out that in relation to year of graduation and level of completion of study, there were no significant differences in the two years completion of study. In relation to level of completion of the study, the number of 10+1 level graduates were in significant when compared with 10+2 level graduates. In addition, in relation to the educational level of officials, almost all of respondents were holders of first degree and above.

3. Field of study.

The study result showed that, in relation to the field of study of graduates except accounting, the other fields were proportional in enrolment of trainees. On the other hand, in relation to employment

opportunity of the field of study, except the field of accounting and sales man ship, others were in significant.

4. Concerning employing organizations

It was identified that employing organizations who hire graduates of the college, were non-governmental organizations.

B) Employment situation

1 Current status of graduates

In the case of the current situation of graduates, the study reveals that the numbers of graduates who are involved in self-employment and employment condition were very insignificant. In addition larger proportions of graduates who were unemployed spent 1-2 years period in hunting Jobs.

2. Self – employment and skills

The result from the study showed that in relation to looking self employment as an alternative of employment of graduates, the majority of graduates did not think of self-employment as an alternative. But significant numbers of graduates have made an effort not to forget the skills what they have gained from the college. In relation to the

importance of skill gained by graduates in helping their day-to-day life, majority of graduates replied that the skills what they gained had an effect on their day to day life.

3. Product and incentive

It was found that, almost all graduates were not produced project or product that could be sold and even those produced did not have gained any financial incentive from the sale of product or project.

C) Factors affecting employment opportunities

1) Employment opportunity

It was identified that the determinant factors for graduates' employment were the financial constraint, strengthening the relationship between training institutions, and employing organization, improvement in the curriculum and improvement of workshop facilities and rarity of employment opportunity are the determinant factors. Moreover employing organizations mentioned that, the development of continuous interaction among employers and training institutions, the absence of link between TVET institution and employing organizations and the practice of traditional training were the determinate factors.

responsible factor for such were the unavailability of labor market information center in the country, the policy problem that links TVET with labor market information system and the weakness in the College. Moreover employing organizations also replied that the major reasons were the problem associated with the link between TVET and employing organizations, the problem associated with policy of TVET and the unavailability of responsible labor market information center.

E) Vocational guidance

In relation to the provision of vocational guidance service to graduates, it was identified that graduates were not provided relevant information about labor market before their placement.

F) Mechanisms development

The study revealed that the major mechanisms that enable to reduce graduate unemployment were, strengthening the relationship between employing organizations, improving curriculum and provision of financial support for graduates. .

5.2 CONCLUSION

In light of the findings of the study the researcher draws the following conclusions. The current employment condition of graduates is unsatisfactory. The majority of graduates of the college were suffering from the problem of unemployment.

In general it can be conclude that the employment opportunities of graduates were affected by the factors like- the rarity of employment opportunity in the country, the unavailability of labor market information source, the weak link between employing organization and the college, lack of practical skills of graduates.

Moreover, in relation to self-employment of graduates, the prominent factors that affect self- employment of graduates were the constraint in finance, lack of management ability and self-confidence, absence of sustainable income, and above all the problem associated with the teaching and learning which give more attention to the theoretical aspects.

Further more, the absence of the provision of labor market information and vocational guidance service were the additional prominent factors that determine the employment opportunities of graduates.

5.3 RECOMMENDATIONS

On the bases of the aforementioned findings, the researcher proposes the following recommended points:

1) To increase the general employment opportunity of graduates strengthening the relation between the college and employing organizations, establishing labor market information centers, improving the method of teaching to the practical aspect, the establishment of policy issues that link the institute with labor market information system are issues that has to be done by the ministry of education and other concerned bodies.

2.) The findings of the data shows that the majority of respondents are unemployed and they do not think of self-employment as an alternative. To help graduates to participate in self-employment, government and other concerned bodies should establish financial resource schemes of supporting self-employment. Moreover, the provision of additional trainings of self-confidence development and management ability are essential for the success of graduates.

3) The other additional points which increase employment opportunity of graduates are the development of market oriented programs by institutes' utilization of modern skills transferring facilities, encouraging

graduates to participate in self-employment. So as trainees have knowledge about a field of study which has a market demand.

4) The provision of labor market information for trainees is the other important element. Trainees should be provided the labor market – demand and supply of the field before they select field of study.

5) Vocational guidance service is one of the elements of TVET training. Therefore, trainees of TVET have to be provided with the necessary vocational guidance before trainees were enrolled to the field of study and while in conducting of training. In addition, necessary information about vocations and development in new vocations has to be provided by the college to the trainees.

6) As a mechanism of reducing graduate unemployment, strengthening the relationship of the institute with employing organizations, improving the curriculum and providing financial support for graduates are points recommended.

7) Finally the student researcher suggests that, educators should look at the problem of graduate unemployment and propose solution for alleviation such a series problem.

- Herr. E.L. and S.H. Cramer. (1972). **Vocational Guidance and Career Development in the School**. New York: Houghton Mifflin Company.
- Ipaye D. (1986). **Educational and Vocational Guidance: Concepts and Approachs**. Ibadan:University of Ife press Ltd.
- ILO. (1973). **Employment in Africa**, Geneva :ILO.
- (1986). **Vocational Training: Glossary of Selected Terms**. Geneva:ILO.
- (2005). **World Employment Report**, Geneva:ILO.
- Ministry of Education, (2003). **Ethiopian Technical and Vocational Training Strategy**. Addis Ababa: Berhanena Selam Printing press.
- Ministry of Education and Research. (1997). **Vocational Training in the dual System in Germany**. Bone: Ministry of education and Research.
- Kazanas, H.C. et.al . (1973). **Philosophy and Foundation of Vocational**. New York: Information Corporation.
- King K. (1985). **The Planning of Technical and Vocational Education and Training**. Paris: UNESCO.
- Simmons, J. (1986). **The Education Dilemma: Policy Issues for Developing Countries in the 1980s**. New York: Pergamon Press
- Toshio T. (1987). **Vocational Education in the Industrialization of Japan**. UN University: Tokyo, Press
- UNESCO. (1964). **Technical Vocational Education and Training: Recommendations by UNESCO and ILO**. Paris, UNESCO.
- (1978). **Terminology of Vocational Education**. Paris: UNESCO.
- (1990). **The Transition from Technical and Vocational Schools to Work**. Geneva, UNESCO/ILO

B. Journals and Unpublished Materials

- Abosetugne Mesfine. (2000). "Employment Market Information and Occupational Guidance for Territory Level Studies in Ethiopia: The Case of Prospective Agricultural College Graduates." Addis Ababa University.
- Amare Asgedom *et.al.* (1998). "Quality of Education In Ethiopia: Vision For The 21 Century". **The Ethiopian journal of Education**, Vol. 1 No. 1.
- Derebssa Dufera. (1997). "Education and Labor market Crisis in Ethiopia," IER Flambeau, Vol. 4, No.1
- Entoto TVET College. (2005). " The 75th Anniversary of Entoto TVET College." Addis Ababa.
- Ministry of Education. (1973). "Technical and Vocational Handbook." Addis Ababa.
- Ministry of Economic Development. (1994). "Employment and Unemployment in Ethiopia." Addis Ababa (unpublished).
- Yuokunoamlak Alemu. (2000). "A Comparative Analysis of Vocational Training and Employment Opportunities in Government and Non - Government Schools/Training Centers in Ethiopia." Addis Ababa.
- Wana Laka. (1992). "Assessing Vocational Education out come with Special Reference to Ethiopia." The Ethiopian Journal of Education. Vol. 13, No. 1

C. Source from the Internet and Electronic Documents

- Brhanu Deny, Abraham Tekeste and Hannah V.D. (2005/07).
"Characteristics and Determinant of Youth Unemployment,
Underemployment and Inadequate Employment in Ethiopia,"
available at [www.ethioworld.com/Business and economics
Economy statistics.htm](http://www.ethioworld.com/Business%20and%20economics/Economy%20statistics.htm)
- ILO. (2002). "Training for Work in the Informal Sector: Fresh Evidence
from West and Central Africa." Available [www.ILO.Org.
trainingforwork WCA.pdf](http://www.ILO.Org/trainingforwork%20WCA.pdf)
- Wikipedia. (2005). "The free encyclopedia." Wikimedia foundation
available at [http/www.wikipedia.org](http://www.wikipedia.org).
- World Bank. (1991). "Vocational and Technical Education, World Bank
Policy Paper." Available at www.worldbank.org.
- (2001). "An over view of labor market worldwide: key trends in
macro policy issues." Available at www.worldbank.org.

APPENDICES

Appendix - A
Addis Ababa University
School of Graduate Studies
Department of Business Education

**QUESTIONNAIRE B: Questionnaire for Employers who have hired
Entoto TVET College graduates.**

Dear Respondent, I am a Masters candidate at the School of Graduate Studies of Addis Ababa University. The purpose of this questionnaire is to gather data for my thesis towards completion of my Masters Degree. The data to be gathered in this questionnaire will focus on factors affecting employment situations of Business Stream graduates from Entoto Technical & Vocational and Training College. It is my belief that the success of this study depends on your sincere and frank response.

Thank you for responding to my questionnaire

Ahmed Yimam

General Instruction

- No need of writing your name
- Where alternative answers are given please put “X” mark identifying your chosen answer from the given choices.
- Where ranking is needed rank by assigning 1 to the most important and 5 to the least important.
- Please be as brief as possible in responding to the open-ended questions.

Thanks again for your kind cooperation to complete this questionnaire.

Part One:- Background Data

1. Name of the Institution, Business or Firm _____
2. Year of Institution, Business or Firm has been operational _____
3. Owner of the Institution, Business or Firm
 - A. Government
 - B. Private

Part Two:- General Questions

4. Which type job have you hired Entoto TVET College graduate/s / for?
 - A. Accounting
 - B. Salesmanship
 - C. Purchasing and Fright Clerk
 - D. Secretarial Science
 - E. Information Technology
 - F. Banking and Insurance
5. How long have your Business been hiring graduates of Entoto TVET Program?
 - A. for the past 1 year
 - B. for the past 2 years
 - C. for the past 3 years
 - D. for the past 4 years
 - E. for the past 5 years

6. How did you rate the performance of Entoto TVET graduates in your Organization?

Item	Not satisfactory	Barely satisfactory	Satisfactory	Very good	Excellent
A) In theoretical subject matter knowledge					
B) In practical subject matter knowledge					
C) In over all academic knowledge					
D) In over all professional knowledge					

7. Do you find enough information about graduates of Entoto TVET Programs?

A. Yes

B. No

8. If your answer for question No. 7 is "Yes" from where do you find information about graduates of the College?

A. From the College web-site

B. From the apprenticeship service given

C. From sponsoring agencies

D. From the efforts of graduates

E. From media advertisements

F. From government labor office

G. Other Specify _____

9. If your answer to question No. 7 is “No” who does you think is responsible for this information gap? Please rank the factors from 1st to 5th.

A. () the weakness of the College

B. () the unavailability of responsible labor market information centre

C. () the problem associated with policy of TVET

D. () the problem associated with media

E. () the problem associated with the link between TVET and employing organizations

10. In your opinion, which of the following factors do affect the employment situation of TVET graduates? Rank the alternatives from 1st to 5th.

A. () Development of interaction among employers and institution

B. () Improving career counseling service for trainees

C. () Establishment of planned placement service

D. () Training programs pursuing traditional training practice and failure to update training strategies and skill components

E. () The link between TVET institutions and employing organizations

Part Three:- In this section please put an “X” mark in one space per item, to indicate your level of agreement or disagreement using Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) or Strongly Disagree (SDA).

Item	SA	A	UD	DA	SDA
11) Formal linkage among institutions of TVET labor market and national policy for employment of graduates is non-existent in the country					
12) The introduction of job-oriented educational programs to institutions of TVET institutions and the reduction of emphasis on traditional way of instruction is being exercised in order to education more responsive to the demand of the labor market					
13) The promotion of self-employment opportunities, on the basis of progressive economic policy, is being practiced in order to encourage the unemployed graduates to establish their own.					
14) In order to facilitate a job search process for graduate job seekers, there is a cooperative team approach to job placement operation among the representatives of TVET and employer organization					
15) The system of institution of TVET, the labor market and the national policy of employment for graduate should operate cooperatively in order to decrease the delay of employment.					
16) One of the major constraints for the delay of employment is locating the job openings due to unorganized system for collecting, processing and disseminating of labor market information.					

17. What do you think the College has to do in increasing employment opportunities of graduates? -----

18. What policy change do you think has to be made to alleviate such problems?-----

THE END

THANK YOU FOR YOUR RESPONSE

APPENDEX- B
Addis Ababa University
School of Graduate Studies
Department of Business Education

QUESTIONNAIR C: Structured Interview Question For officials of the college, guidance officers, Department of head of business and officials of Addis Ababa education bureau.

Guide for interview

Introduction:

Read or say:

Dear Respondents, or Dr. _____ or Mr. _____

Ms. _____

My name is Ahmed Yimam. I am a master's candidate of the school of graduate studies of Addis Ababa University. The purpose of this questionnaire is to gather data for my thesis towards completion of my Masters degree. The data to be gathered in this questionnaire will focus on factors affecting employment situations of business stream graduates from Entoto Technical and vocational training college. It is my belief that your sincere and frank response to this interview does contribute to the effectiveness of the data gathering for my research.

Thank you very much for your willingness to let me share your time and information. May we proceed to the interview?

Part One Data on Respondent's Background

1. Sex A) () Male

B) () Female

7. Do you think that trainees are placed in their field of study after they have received vocational guidance?

8. Do you think that business stream graduates have graduated with the essential practical training skills?

9. If your answer to question no. 8 is "yes" how is essential training realized, or what were the conducive means to realize the provision of essential training?

10. From your own observation and the information you have how much of graduates of the year 2004 and 2005 have engaged in self-employment?

11. Why do you think has the employment situation of the graduates taken the trend you have observed?

12. Which of the factors do you think are most significant ones in determining the employability of graduates? Rank the alternatives from 1st to 5th.

A) () Strengthening the relation between training centers and employing organizations

B) () Administrative and Teaching Capacity

C) () Improvement in Curriculum

D) () Improvement in Work shop Facility

E) () Strengthening entrance requirement

13. What measures do you think should the college take to strengthen the employability of its graduates?-----

14. What policy improvements or change if required, do you think has to be made to improve employability of graduates? -----

-----THE END-----

THANK YOU FOR YOUR RESPONSE

APPENDEX- C

**አዲስ አበባ ዮንቨርሲቲ
የድህረ ምረቃ ትምህርት ቤት
የቢዝነስ ትምህርት ክፍል**

መጠይቅ 1: ለሙያና ቴክኒክ ተመራቂዎች

ውድ የመጠይቁ መላሽ:-

እኔ የአዲስ አበባ ዮንቨርሲቲ የድህረ ምረቃ ትምህርት ዕጩ ተመራቂ ነኝ። የዚህ መጠይቅ አላማ ለሁለተኛ ዲግሪ ማሟያ የሚሆን ፅሁፍ ለማዘጋጀት መረጃ ማሰባሰብ ነው። በዚህ መጠይቅ የሚሰበሰቡት መረጃዎች ዋናው ትኩረታቸው ከእንጦጦ ቴክኒክና ሙያ ትምህርትና ስልጠና ኮሌጅ በቢዝነስ ትምህርት ዘርፍ የሚመረቁ ሰልጣኞችን የስራ ማግኘት ሁኔታ ለማጥናት ነው።

ለዚህ ጥናት ወጤታማነት የእርስዎ እወኑተኛ እና ግልፅ ምላሽ ወሳኝ እንደሚሆን አምናለሁ።

ጥያቄዎቹን ለመመለስ ስለተባበሩኝ አመሰግናለሁ
አህመድ ይማም

አጠቃላይ መመሪያ

- ሥምዎን መጻፍ አያስፈልግም።
- አማራጭ መልስ ለቀረበላቸው በተሰጠው ቦታ ላይ «X» ምልክት በማስቀመጥ ይግለፁ።
- ደረጃ የሚያስፈልገው ከሆነ ለእጅግ በጣም አስፈላጊ «1» ቁጥርን እና ለዝቅተኛ አስፈላጊ «5» ቁጥርን ይስጡ።
- ክፍት ለሆኑ ጥያቄዎች በተቻለ መጠን አጭርና ግልጽ መልስ ይስጡ።

ክፍል አንድ የመላሾች መረጃ

- | | | |
|-----------------------------|--------------------|-----------------------|
| 1) ያታ | ሀ) () ወንድ | ለ) () ሴት |
| 2) እድሜ | ሀ) () ከ 15-20 | ለ) () ከ 21-25 |
| | ሐ) () ከ 26-30 | መ) () ከ 31-35 |
| | ሠ) () ከ 36 በላይ | |
| 3) የሙያ ስልጠና ያጠናቀቁበት ዓመት:- | ሀ) () 1996 ዓ. ም | ለ) () 1997 ዓ. ም |
| 4) ሲመረቁ የነበረዎት የስልጠና ደረጃ :- | ሀ) () 10 +1 | ለ) () |
| 10 +2 | | |
| 5) የስልጠና መስክ:- | ሀ) () የሽያጭ ሰራተኛ | ለ) () የእቃ ግዥ ሰራተኛ |
| | ሐ) () የጽህፈት ሥራ | መ) () ኢንፎርሜሽን ቴክኖሎጂ |
| | ሰ) () ባንክና ኢንሹራንስ | ረ) () የሂሳብ መዘገብ አያያዝ |

ክፍል ሁለት - የጥናቱ ዋና ነጥቦች

- 1) አሁን ያለዎት የስራ ሁኔታ:-
ሀ) () የግል ሥራ

ሀ. () አብዛኛው የንድግ ሀሳብ (ቲዎሪ) መሆናቸው ሐ. () ለተግባር ስልጠና ያለው ዝቅተኛ ፍላጎት

ለ. () ስራ እስኪያገኘው ወይም ስራ ላይ መተሰማሩበት ወቅት የተመቻቸ ሁኔታ አለነኛር

መ. () ከሥርዓተ ትምህርቱ (ካሪኩለሙ) ከገበያ ፍላጎት ጋር የተጣጣመ አለመሆኑ

ሠ. ሌላ ምክንያት ካለ ይገለጹ-----

10. ከሚከተሉት ውስጥ የግል ተቀጣሪ /ተከፋይ ሠራተኛ/ ወይም ሥራ አጥ ለመሆን ወሳኝ ምክንያት የትኛው ይመስልዎታል/ ከአንድ በላይ ሊጠቀሱ ይችላሉ?

ሀ. () የገንዘብ እጥረት ሐ. () የሥራ ዕድል መጥበብ /ማነስ

ለ. () ስለስራ መረጃ ያለማግኘት መ. () የሥልጠና በቂ ያለመሆን

ረ. ሌላ ካለ ይገለጹ-----

11. ለሙያ ተመራቂዎች ሥራ ማግኘት ከሚከተሉት ምክንያቶች ውስጥ የትኛው የበለጠ ወሳኝ ይመስልዎታል? 1ኛ በጣም ወሳኝ 5ኛ ዝቅተኛ ወሳኝ በማለት ምርጫዎን በደረጃ ይግለጹ

ሀ. () የሥልጠና ማዕከላትና የቀጣሪ ወኪሎችን ግንኙነት ማጠናከር

ለ. () አስተዳደራዊና የማስተማር አቅም

ሐ. () ሥርዓተ ትምህርቱን ማሻሻል

መ. () የስልጠና ቁሳቁስ ማሻሻል

ሠ. () የመግቢያ መስፈርትን ማጠናከር

12. በሠለጠኑበት ኮሌጅ ውስጥ ለተግባር ስልጠና አጋዥ የሆኑ ቁሳቁሶችን በቂነት _____ በመረጡት ሳጥን ውስጥ የx ምልክት ያመልክቱ /ያስቀምጡ

ዓይነት	በቂ ያልሆነ	በቂ
ሀ. ቁሳቁስና ማሸን		
ለ. የእጅ መሣሪያዎች		
ሐ. የትምህርት መርጃ		
መ. ጥሬ ዕቃ		

13. የሸያጭ ምርቶችን /ለገበያ የሚውሉ ምርቶችን/ አምርተው ያውቃሉ?

- ሀ. () አውቃለሁ ለ. () አላውቅም
14. ለተራ ቁጥር 13 ጥያቄ መልስዎ አውቃለሁ ከሆነ ከዚያ ገንዘብ ማበረታቻ አግኝተዋል?
- ሀ. () አዎ አግኝቻለሁ ለ. () አላገኘሁም
15. ወደ ስልጠና ከመግባትዎ በፊት ስለሙያዎ የወደፊት የገበያ ሁኔታ ጠቃሚ መረጃ አግኝተው ነበር?
- ሀ. () አዎ አግኝቻለሁ ለ. () አላገኘሁም
16. በራስዎ አመለካከት የሰለጠኑበትን የሥልጠና መርሃ ግብር ከመምረጥዎ በፊት ስለገበያ ሁኔታ ማግኘት የነበረብዎትን መረጃ ላለማግኘትዎ ኃላፊነቱ የየትኛው አካል ነው። 1ኛ በጣም ወሳኝ 5ኛ ዝቅተኛ ወሳኝ በማለት ምርጫዎን በደረጃ ይግለጹ
- ሀ. () በኮሌጁ ውስጥ ያለ ድክመት
 ለ. () በሀገሪቱ ውስጥ የገበያ መረጃ አለመኖር
 ሐ. () የሙያ ስልጠና ከገበያ መረጃ ዘዴ ጋር ያለው የፖሊሲ ችግር
 መ. () ስለገበያ መረጃ የሚሰጥ የሚመለከተው ተቋም ያለመሃር
 ሠ. () የገበያ የማስታወቂያ ድርጅቶች ያለመኖር
17. የሙያ ስልጠና አመዳደብን በተመለከተ ሙያዊ ምክር አግኝተው ነበር?
- ሀ. () አዎ አግኝቻለሁ ለ. () አላገኘሁም

ክፍል ሶስት

በዚህ ክፍል በተሰጠው ክፍል ቦታ በእያንዳንዱ ነጥብ ትይዩ የX ምልክት በማስቀመጥ የመስማማትዎን ወይም ያለመስማማትዎን ደረጃ ለመግለጽ የሚከተለውን ምህፃረ ቃል ይጠቀሙ በጣም እስማማለሁ /በእ/፣ እስማማለሁ/እ/፣ አልወስንም/አ/፣ አልስማማም/አል/፣ ወይም በጣም አልስማማም/በአ/ ይጠቀሙ።

ነጥብ	በእ	እ	አ	አል	በአ
18. ተመራቂዎችን ለመቅጠር በሙያ ማሰልጠኛ ተቋማት በገበያ ፍላጎትና ብሔራዊ ፖሊሲ መካከል መደበኛ ግንኙነት ያለመኖር					
19. ሥራ አጥ ተመራቂዎች የራሳቸውን እንዲያቋቁሙ እያደገ የሚሄደውን የኢኮኖሚ ፖሊሲ መሠረት በማድረግ የግል የሥራ ዕድልን ማበረታታት /ከፍ ማድረግ					

20. የሥራ ዕድል ያለው የጥናት መስክ እንዲመርጡ ሠልጣኞችን ለመርዳት በሁሉም የሙያ ማሠልጠኛ ተቋማት ጠቃሚና ትክክለኛ የሙያ መረጃ መስጠት				
21. ለተመራቂ ሥራ ፈላጊዎች የሥራ አፈላለግ መንገድን ለማፋጠን/ማበረታታት/ ከሙያማሠልጠኛ ተቋማትና በቀጣሪ ድርጅቶች ቅንጅታዊ አቀራረብ መኖር				
22. ትምህርቱ በገበያው የጉልበት ፍላጎት እንዲመልስ በሙያ ማሠልጠኛ ተቋማት ውስጥ ሥራ ተኮር የትምህርት መርሃ ግብር ማምጣትና ኃላፊ /ልማዳዊ ሥ ልጠናዎችን መቀነስ				

23. የኢትዮጵያ እውነታ በማገናዘብ ለማንኛውም ዕጩ የቴ/ሙ/ት/ስልጠና ሰልጣኝ ሙያዊ ምክር መስጠት ለምን የሚያስፈልገው ይመስልዎታል? _____

24. በራስዎ አመለካከት ለወደፊቶቹ ሠልጣኞች ገበያው የሚፈልገውን መረጃ መስጠት ለምን ይጠቅማል? _____

25 . የሙ/ቴ/ት/ስልጠና ተመራቂዎችን የሥራ ሁኔታ ላይ ተዕዕኖ ያለው ምክንያት ምንድነው? _____

26. በራስዎ አመለካከት እነዚህን ችግሮች ለመቅረፍ /ለማቃለል/ ምን ዓይነት ስትራቴጅ ቢተገበር ይሻላል/ይተገበር/? _____

መጨረሻ
ስለምላሽዎ አመሰግናለሁ።



Appendix D

Yeshi/My Doc. Entoto TVET Graduates

(REGULAR)
**ENTOTO TECHNICAL & VOCATIONAL
 EDUCATION & TRAINING COLLEGE**
 Number of graduates from 2001/02 (1994) to 2005/06 (1998)

Training Area	Level	2001/02 (1994)			2002/03 (1995)			2003/04 (1996)			2004/05 (1997)			2005/06 (1998)			TOTAL		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Accounting	10+1	13	121	134	27	68	95	34	46	80	15	11	26	5	40	45	94	326	420
	10+2	-	-	-	62	142	204	31	64	95	26	76	102	15	36	51	134	318	452
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	17	43	60	17	43	60
	Total	13	121	134	89	210	299	65	110	175	41	87	128	37	119	156	245	687	932
Secretarial Science	10+1	-	53	53	4	34	38	-	25	25	1	19	20	-	35	35	5	166	171
	10+2	-	-	-	1	133	134	6	57	63	-	40	40	1	25	26	8	243	251
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	-	50	50	-	50	50
	Total	-	53	53	5	167	172	6	82	88	1	59	60	1	110	111	13	459	472
Information Technology	10+1	5	29	34	31	28	59	10	21	31	6	13	19	5	36	41	57	127	184
	10+2	-	-	-	18	45	63	38	39	77	10	38	48	3	21	24	69	143	212
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	23	23	46	23	23	46
	Total	5	29	34	49	73	122	48	60	108	16	51	67	31	80	111	149	293	442
Banking And Insurance	10+1	13	50	63	-	-	-	-	-	-	-	-	-	-	-	-	13	50	63
	10+2	-	-	-	19	116	135	42	46	88	17	26	43	-	-	-	78	188	266
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	25	39	64	25	39	64
	Total	13	50	63	19	116	135	42	46	88	17	26	43	25	39	64	116	277	393
Purchasing	10+1	7	20	27	12	48	60	8	17	25	-	-	-	1	40	41	28	125	153
	10+2	-	-	-	16	60	76	30	50	80	6	43	49	-	-	-	52	153	205
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	16	26	42	16	26	42
	Total	7	20	27	28	108	136	38	67	105	6	43	49	17	66	83	96	304	400
Salesmanship	10+1	-	32	32	12	57	69	21	13	34	-	-	-	3	40	43	36	142	178
	10+2	-	-	-	9	60	69	6	32	38	12	48	60	-	-	-	27	140	167
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	15	27	42	15	27	42
	Total	-	32	32	21	117	138	27	45	72	12	48	60	18	67	85	78	309	387
Law	10+1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10+2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10+3	-	-	-	-	-	-	-	-	-	-	-	-	20	25	45	20	25	45
	Total	-	-	-	-	-	-	-	-	-	-	-	-	20	25	45	20	25	45

11/11/99
 መ/ኮ/99 ዶ.መ.ር. አሰገ
 Mekonnen Yimer Hassen
 የአካላዊ ስነ/ፈን
 Academic Vice-Dean

Formula for computing T-value

T-Test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad \begin{array}{l} \mapsto \\ \mapsto \\ \mapsto \end{array} \quad \begin{array}{l} \text{difference between means} \\ \text{variance} \\ \text{sample size} \end{array}$$

where \bar{x}_1 = mean of sample 1

\bar{x}_2 = mean of sample 2

n_1 = number of subjects in sample 1

n_2 = number of subjects in sample 2

$$s_1^2 = \text{variance of sample 1} = \frac{\sum(x_1 - \bar{x}_1)^2}{n_1}$$

$$s_2^2 = \text{variance of sample 2} = \frac{\sum(x_2 - \bar{x}_2)^2}{n_2}$$