

The Status of Implementing Outcome-Based TVET System in Major
General Mulugeta Buli Technical College: Challenges and Prospects

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This is to certify that the thesis prepared by Yohannes Mekonen, entitled: The Status of Implementing Outcome-Based TVET System in Major General Mulugeta Buli Technical College: Challenges and Prospects and submitted in partial fulfillment of the requirements for the degree of Master of Arts (Education Research and Development) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

The Status of Implementing Outcome-Based TVET System in Major General Mulugeta Buli Technical College: Challenges and Prospects.

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The main purpose of this study was to explore OBTVET implementation status in MGBBTC and suggest the necessary recommendations. To this end, 36 teaching staff and 92 final year students of the college were filled out the questionnaires. In addition to the questionnaires, interviews, FGD, document review and observation had been used. Accordingly, the data obtained from different sources were analyzed using both quantitative and qualitative methods. The result obtained revealed that available teaching staffs in terms of service years and educational qualification were seen sufficient. Except in some competence areas of electrical department and armament technology, employed teaching staffs were seen sufficient. However, there was no an officer to facilitate guidance and counseling service in the college. Employed financial and physical resources were insufficient. Besides these constraints, OBTVET implementation had been affected by mismatch of teaching-learning process with OBTVET requirement. This had been the result of limited awareness of the teaching staff. Lack of DOS in most competence areas had been another limitation of the college to implement OBTVET. However, in solving forgone problems existing teaching staff commitment in combination with their educational achievement and circumstances of the management in the college observed as a good opportunity to enhance OBTVET implementation. Therefore, MoND should give due attention on supplying and facilitating of teaching-learning resources as well as provision of short term training to support OBTVET practices. Moreover, the college needs to do in collaboration with defense units to alleviate shortage of demonstration equipments and to enhance cooperative training.

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AU	African Union
DOS	Defense occupational standard
DUC	Defense University College
EC	European Commission
EOS	Ethiopian Occupational Standard
EQF	European qualifications framework
ETQF	Ethiopian TVET Qualifications Framework
FGD	Focus Group Discussions
GOB	Government of Bangladesh
ICT	Information communication technology
ILO	International Labor Organization
KSA	Knowledge, skills and attitude
MGBBTC	Major General Muligeta Buli Technical College
MOE	Ministry of Education
MoND	Ministry of National Defense
NTQF	National TVET Qualification Framework
OBE	Outcomes based education
OBET	Outcome-based Education and Training
OBTVET	Outcome-based Technical and Vocational Education and Training
OS	Occupational Standard
SPSS	Statistical package for social science
TLTQF	TVET Leaders' and Trainer's Qualifications Framework
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
ecbp	engineering capacity building program

CHAPTER ONE

1. INTRODUCTION

This chapter sets the general over view of the study problem. It begins with back ground of the study in section 1.1 followed by problem of the statement in section 1.2. Section 1.3 and 1.4 presents the basic questions and purpose of the study, respectively. Significance of the study is presented in section 1.5. Section 1.6 presents the scope and limitation of the study. Finally, section 1.7 present operational definitions of the study.

1.1. Background of the Study

It is quite clear that education is the most important tool and to deal with the changing social and physical environments. It is a process designed to shape the knowledge, skills and attitudes necessary for individuals to manage the environment to which they live. Verma (2001) argues that the primary purpose of education is to advance and promote the fullest individual self realization for all and it is considered as the basic right for everyone. Thus, education particularly Technical and Vocational Education and Training plays a pivotal role in skill development and have significant contribution to fight against poverty. Hence, poverty reduction is impossible unless the economy generates opportunities for investment, entrepreneurship, job creation and sustainable livelihood.

Similarly, ADB (2008) pointed out that lack of adequately educated and trained workers conceived as a major bottleneck in the process of economic growth and expansion. Therefore, global community recognizes the economic and social returns of investment in education and seeks assistance from development banks in optimizing that investment. Recently, attention is given to technical and vocational education and training to guarantee the needs of increasing complex demands of globalization. Postethwaite (1994) noted that technical and vocational education and training is one of the realistic foundations of education for poverty reduction

strategy. It enables an individual to choose occupation and prepare to enter into income generating employment and sustain to gain productive effort.

Technical and vocational education and training helps people to attain their full educational or professional potentials. Consequently, this makes meaningful contributions to the society. This means implementation, maintenance or expansion of TVET opportunities are important to reflect on some fundamental issues and challenges. It is considered as education of workers and education for manual; and traced to early apprentice-ship training practices. The notion of TVET centers on the idea to work with hands based on curriculum of certain manual activities rather than mind (UNESCO, 2002).

However, TVET has been seen as the substandard option due to different reasons; It unable to satisfy labor market demand of today's' global economy. Rao (2007) argued that traditional technical and vocational education and training is often regarded as inferior or as a second choice regardless of the student's interest or abilities. For this reason, many people dismiss promising and meaningful career paths in areas where employment demand is greater because of the stigma attached to TVET programs. According to Morris (1996, cited in UNESCO, 2002) most TVET systems fail to monitor or evaluate the quality outcomes of training in terms of competencies achieved due to the focus of the education system toward preparation for university education.

Therefore, in order to overcome the problem attached to TVET, the development of an effective TVET system is at the heart of the education reform of global society. The goal of the reform initiatives is to develop a better understanding of the role of skills development in the framework of poverty reduction and promote policy options. This ensures the demand oriented of the actual TVET delivery and its association with the local labor market in response to the needs of workforce in the economy (UNESCO, 2003 and GOB, 2008).

Several studies show that outcome-based education and training system is an appropriate tool in the process of educational reform. According to Christan, (2006,

cited in Maphalala, 2006) outcome-based education and training is often described as a global educational curriculum reform phenomenon that many developed countries have adapted to suit their local needs. It is designed to make easier toward recognition of the wider range of non-formal and informal training schemes in order to open access for previously neglected target groups.

In Ethiopia, TVET has a long history and the institutions become expanded to contribute to poverty reduction strategy. Expansion of these institutions has noticeably increased since the enforcement of the 1994 Ethiopian education policy. However, it has been fragmented and insufficient to respond to the demand of the economic sector of the country (Edukans Foundation, 2009). Therefore, TVET reform for Ethiopia is an important action in order to overcome poverty. Hence, TVET reform in the country is being implemented based on the expectation that it can contribute to sustainable development. In line with this, TVET is organized into outcome based approach to enhance contribution of the program in poverty reduction plan. It is the most appropriate mechanism, procedure and instrument for standard setting, assessment and qualifications. It is thus, one of the appropriate ways to address the development needs of the Ethiopian economy. For this reason, building an outcome-based TVET system is the spotlight of the TVET reform in which the national TVET Strategy is an important element of the overall policy framework of the development and poverty reduction program of the country. It increases the chances of an occupational career and creates options for further education and training (MOE, 2008; MOE 2010a; GTZ, 2006). In this connection, AU (2007) argues that Ethiopia is one of the African countries prioritized TVET initiatives in its national development policy document.

To increase the economic contribution of the sector, national TVET registration and accreditation manual of the country addresses the issue of standards in the reform process. In this regard, the training institutions shall be ensure visibility of TVET outcomes and needs to consider how far the training process respond to the industry demands both locally and nationally. In this regard, labor market information gathering system of TVET institutions expected to include data on

industry demand, employment and unemployment in the process of their labor market assessment. Consequently, curriculum development process can take significant contribution in satisfying the needs of the reform. Thus, the new TVET system aims at progressive decentralization and its EOS is responsible to assess the curriculum development process of TVET institutions. But, NTQF is accountable to the reorganization issues and responsible to define occupational qualification levels to be awarded to enhance quality and relevance of TVET (MOE, 2010b, MoE, 2010a).

To this end, TVET institutions become centers of knowledge, skill and attitude development for every industry, company and organizations in order to satisfy the needs of skilled manpower.

In the case of defense force, education and training is perceived to build armed forces readiness and availability with adequate skill and knowledge to guarantee the purpose of military deterrence and military requirement of the country. Because, skilled people are required to ensure that military operations are executed with excellence. The success of army member in education, training and development permeates the overall achievements of the army members (Snider, 2002).

According to USA army rapid action revision RAR (2011) the army's training effort is to support training in the three domains. This means training occurs at: institutional, operational and self-development levels. Each training domain complements to each other and have an important role in training soldiers and army civilians, and in preparing units for employment. However, for the purpose of this paper the third domain is the focus of the study.

The self-development training domain recognizes that army service requires continuous, life-long learning and that structured training activities in army schools and operational units. Self-development training enables individuals to pursue personal and professional development goals.

This is also true for the Ethiopian Ministry of National Defense in which it is believed that education and training is an integral part of preparation of force for military operation of the country.

In this regard, Ethiopian MoND recognizes that it is necessary to establish training and education centers. Hence, the ministry has established different training and education centers. Defense University College (DUC) is one of such centers. It was established in 2001 by the regulation of the council of ministers, No 68/2001 (DUC, 2011).

According to DUC (2011), the university college was founded with the vision of being a center of excellence in education and research through developing innovative and creative culture. DUC has also a mission of delivering high quality education and training opportunities in accordance with the needs of MoND. All the MoND colleges have become part of the university college. The university college consists of four defense colleges namely; College of Engineering, College of Health Sciences, College of Resource Management and Major General Mulugeta Buli Technical College. The colleges are running programs in different specialized areas independently. It is expected to make a vital contribution not only to the MoND but also to the country at large.

MGBBTC (the area of the present study) is one of the defense colleges, which was established in 1961 with the goal of building army force with competent technicians through provision of graduates with appropriate competency skill, knowledge and attitude at certificate level. In 1972 the college was upgraded to provide diploma level training. The college is, thus, one of the colleges with long experience and establishment record in Ethiopian TVET history. Currently, the college intends to produce a full-fledged junior, middle and higher level military technicians who are loyal to safeguard the constitution, problem solvers, creative and adaptive to new technologies in quality and quantity. This can be possible through expanding and developing different training programs and turning out to be center of excellence for research dissemination and extension as well as for the country's TVET colleges.

To this end, the college has gone through basic transformation. As one part of this transformation process, the college performs curriculum development based on the needs of MoND and the evaluation of the previous TVET-curriculum. The college curriculum is developed based on the reformed Ethiopian TVET system which is outcome based TVET system.

For the proper implementation of required competences, MoND has its own occupational standards known as defense occupational standard (DOS). This is because of its exclusive mission and job behaviors so as to enable it to examine its military technicians with respect to their mission (MGMBTC, 2010).

1.2. Statement of the Problem

Traditionally, TVET system of Worldwide has been made slow progress in its contribution to poverty reduction strategy. To overcome this problem, different countries are undergoing reform to reap outcome of this institutions. Studies show that outcome-based TVET system is an important paradigm change of recent reform of technical and vocational education and training.

For the same reason, the Ethiopian TVET system in line with many recent TVET systems of other countries, which is restructured into an outcome-based TVET system to satisfy competences needed in the labour market. It is also expected to be final benchmark of teaching, training and learning in TVET. Consequently, the TVET system supports citizens to be competent in the world of work. The goal of this reform is to create a competent and flexible workforce that serves as the backbone of the economic and social development. It enables to increase the number of trained labor force and self-employment in different economic sectors of the country (MOE, 2008).

Similarly, outcome-based TVET system in the context of the Ethiopian ministry of national defense is currently being implemented in Major General Muligeta Bului Technical College, with in the national TVET framework and its experience of implementation capacity. According to MGMBTC (2011) the college is on its 50th years of establishment and presently it is part of the national TVET reform process.

This means, if the college utilizes its long time experience, it can contribute significant knowledge as input for the implementation process of outcome-based TVET for the MoND in particular and to the country in general.

The college is operating under the Defense University College of the country vis-à-vis the requirement of the national TVET policy. However, there was no study to ascertain weakness and strength of the current implementation status of OBTVET in the college. In this regard, it has been difficult to identify real situations of the implementation practice of the program in college. Hence, to know the effectiveness of the implementation status of outcome-based TVET in MGMBTC, conducting research has paramount importance. Therefore, this study intended to answer the following basic research questions to meet its purpose.

1. 3. Basic Research Questions

1. What is the state of implementation of OBTVET in Major General Muligeta Buli technical college (MGMBTC)?
2. Under what circumstances does the college implement outcome-based TVET in the college?
3. What are the challenges faced to impalement outcome-based TVET in the college?
4. What measure can be taken to successfully implement outcome-based TVET in MGMBTC?

1.4. Purpose of the Study

The Overall purpose of the study is to assess the existing challenges and prospect in implementing outcome-based TVET system in Major General Muligeta Bulli Technical College. It also helps to enrich the already existing knowledge about the implementation of outcome-based TVET system. More specifically, this study intends to:

1. Examine the status of implementing outcome-based TVET in Major General Muligeta Buli Technical College.

2. Assess circumstances of the college in implementing outcome-based TVET system.
3. Find out the challenges that faced in implementing outcome-based TVET system in the college.
4. Draw lessons to be learned and suggest recommendation for improving the implementation of outcome-based TVET system and serve as feedback to improve the process of learning in Major General Muligeta Bulli Technical College.

1.5. Significance of the Study

This study shall serve as a basis for decision making by planners, policy decision makers and provide to better understanding about outcome-based TVET system. Also findings of the study can benefit DUC, MGMBTC and other stakeholders as advanced opportunities for strengthening and improvement of outcome-based TVET system in identifying strategies of implementation practice of OBTVET. It also contributes to practitioners and academicians that can benefit from the knowledge and literature of this work by using it as an input for further research on this field of studies, and has an attempt to generate data for the issue under discussion. More specifically, this study is important to:

1. Assess important elements of OBTVET system implementation practices that need attention by all stakeholders.
2. Identify challenges faced in implementation practice of OBTVET system for further improvement.
3. Give appropriate recommendations in order to bring solutions for observed deficiencies.
4. Provide a direction for further investigations in the area of OBTVET system implementation practices.

1.6. Scope of the Study

This study is concerned only with the implementation of outcome-based TVET at MGMBTC. It focuses on current status of the implementation process of outcome-

based TVET in one college aiming at regular program. It does not examine the whole national defense training system.

1.7. Limitations of the Study

Even though it believed that comparison of outcome-based TVET system implementation with different colleges might be important for the study, resource and time constraints have limited to do so.

1.8. Operational Definitions

The following terms and phrases are contextually defined as have been explained by deferent sources and used in this thesis.

Academic Staff: All teaching and research staff of the Major General Muligeta Buli Technical College (MGMBTC, 2010a).

Administrative Staff: Administrative Staff shall mean all employees of the MGMBTC other than members of the academic staff responsible to provide administrative service for smooth functioning of teaching learning activity (MGMBTC, 2010a).

College Facilities: Are facilities those should be very important in learning teaching process. These may include; working stations, ICT, laboratories, library and other supplementary materials (MGMBTC, 2010a).

Commandant: Entitled army officers and civilians to command and lead Major General Muligeta Buli Technical College (MGMBTC) and DUC appointed by the Ministry of National Defense (MGMBTC, 2010a).

Competency: is the capability of someone to reach at specific achievement. Personal competencies comprise; integrated performance oriented capabilities to do things. It is the capacity to realize up to standard of the key occupational tasks (MoE, 2010c).

Curriculum Development: Is selection and organization of pattern or design to enable learning to be taking place to achieve intended learning outcomes (Maphalala 2006). In this study it has been used in accordance with this definition.

Department Head: is a person assigned as ahead of the respective department in the college (MGMBTC, 2010a).

Effectiveness: In this study effectiveness is to what extent the planned activities are realized and achieved in the process teaching-learning activity (MoE, 2008).

Efficiency: This means how far the result is achieved at possible minimum cost. It looks the relationship between resource used and the result achieved (MoE, 2008).

Major General Mulugeta Buli Technical College: In this study it means the college under the Defense University College which gives technical and vocational education and training (MGMBTC, 2011a).

Occupational Standards: It is industry focus to reflect the needs of the organization core business and the job (*MOE, 2010c*).

Outcomes: are demonstrations of learning in such a way that it consist a group of tasks at the end of learning experience (Spady, 1994).

Outcome-Based Education and Training: An education which places most emphasis on what the learner should be able to do after their graduation (Spady, 1994).

Professional gap: In this study professional gap mean the knowledge limitation of teachers of the college have in implementing outcome-based education according to stated objectives to satisfy the stated mission of the college.

Trainee: is an individual who is going to join institutions to attend the course in accordance to the required eligibility criteria (MoE, 2010c). Hence, in this study trainee is a person who entitled to attend education and training in MGMBTC.

Trainer: A person who demonstrate competences through skills, knowledge and attitudes and establishing his / her credibility in the process of teaching learning activity (MoE, 2010f).

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

The purpose of this chapter is to explore the available literature about outcome based education and form the theoretical and conceptual bases of the study. It also provides the issues of outcome-based TVET implementation practices and inhibiting factors.

2.1. Conceptual Consideration

In this section an attempt is made to conceptualize OBET and discuss meanings and forms of OBET.

2.1.1. Defining OBET

The notion of outcome-based education and training has been widely described in the field of education from different directions. Outcome-based education may be defined as an education and training system in which decisions about curriculum, instruction and assessment should be taken according to the exit outcomes (McNeir, 1993).

According to Coetzee (2002, cited in Jordaan, 2007), OBET means focusing on and organizing an education and training system which is essential for all learners to be able to attain at the end of their learning experiences. It is organized around defined outcomes and starts with a clear picture that is important for the ability to do. Thus, OBET program addresses essential issues to the students that enable them to designate into work place effectively at the end of their learning experiences. In this regard, what and whether learners learn successfully is more important than when and how they learn something.

Similarly, Killen (2000) and Tucker (2004) argues that OBET is a theory or a philosophy of education in which the system consists of certain set of beliefs and assumptions about learning, teaching and systematic structure necessary for educational activities. These activities and practices of OBET system reflect the

attainment of high order learning and mastery rather than accumulation of the course credits.

Moreover, OBET is a new paradigm shift in reviewing the characteristics of education and training. This means, it is a shift toward learning rather than teaching and provides experience in steady of information through a move from normative paper based examination to outcome based assessment. These changes are not only anticipated to meet the needs of industry, but also to create empowered individuals who can take control of their own learning and their lives. Its framework encompasses concerns about demonstrable skills, increased educational opportunity and issue of accountability and regarded as the umbrella under which all practices of school operation occur. That is, it embraces system level change and promotes equality. Therefore, it facilitates desired changes within the learners by increasing knowledge, developing skills and positively influencing attitudes and regard as essential tool for educational reform. To this end, it needs successful implementation to achieve its targeted goals (Meyer, 2001; Lserbyt, 1999 and McNeir, 1993)

According to Luitel (2002), translation of the exit outcomes into the learning areas is a vital and significant practice for successful implementation of OBET. Thus, exit outcome is a core concept in OBET development activities. Spady (1994) describes that exit outcomes are learning demonstrations that define the systems ultimate expectations for students occurring after the end of the school careers. These exit outcomes can be determined by different factors.

Moorhouse (2007) distinguishes OBET standards and learning programs are the most determinant factors of exit outcomes. Therefore, programs can represent culminating outcomes of particular qualification. However, in fully developed OBET system the term exit outcome can be represented by culminating outcomes, but for less developed OBET system it might be applied to program outcomes and course outcomes.

Most scholars accept the definition of culminating outcomes which had been proposed by Spady (1994). For Spady, culminating outcomes are what the system wants all students to be able to do after the completion of their official learning experience. Therefore, enabling outcomes are key building blocks on which OBET depends and they are essential to student's ultimate performance and success. This means learning in OBET is defined in terms of outcomes and it is key concept of OBET system.

According to the European Qualifications Framework (EQF), Learning outcomes are what a learner knows, understands and is able to do on completion of a learning process. It is defined in terms of knowledge, skills and competences. However, the form of learning can be either formal or non-formal education arrangements or informally through experience gained in the community or at the work place (European Centre for the Development of Vocational Training, 2010). Kellin (2000) distinguish two types of learning outcomes. The first view of learning outcomes is in terms of performance indicators which include test results, completion rates, post course employment rates etc. Secondly, learning outcome is seen in terms of what learner now and able to do as a result of their education and training and it is a vital in today's OBET system.

In general, it is clear from the above concepts that outcome-based education and training is focuses on the learner's competence and achievement rather than on course content of traditional approach. However, the notion behind OBET does not cancel out all the content part of traditional learning but emphasizes its importance within specific context.

2.1.2. Forms of Outcome-Based Education and training

South African Department of Education (1997, cited in Maphalala, 2006), and Mokab, (2005) state that there are three broad forms of OBET. These are: traditional OBET, transitional OBET and transformational OBET.

2.1.2.1. Traditional OBET

Traditional OBET is characterized by pre-existing subject content development of learning outcomes and defined as instructional aims based on the content syllabus. Therefore, it is guided by curriculum-based objectives. This means the curriculum remains constant and the focus is on the content outcomes. These outcomes are elicited from the syllabus. In this regards, mastering subject matter of the content is at the center of the outcomes. And outcomes are specific not holistic and often not linked to skills that the learner would need in the working environment and general life (Luitel, 2002). Spady(1994) argue that in traditional forms of OBET schooling is considered as calendar and time table controlled and organized into subject or course to be covered in specific time.

Thus, in traditional OBET, culminating performance is limited to small sections of instruction which makes an end by itself. It focuses on to bring clear criteria and flexible time tables in to the traditional time-based schools and it does not challenge the conventional nature of the school day (Luitel, 2002; Maphalala, 2006 and Ramroop, 2004).

2.1.2.2. Transitional OBET

Transitional OBET moves away from traditional OBET to identify outcomes that reflect high order competencies. This means, it is regarded as the development of complex unstructured task performance. This approach sets out the outcomes that will be required by students when they graduate and stresses on critical thinking and problem solving. However, it does not allow total change to take place. Therefore, transitional OBET lies between traditional and transformational OBET. It incorporates traditional OBET for planning the curriculum and transformational OBET for orienting the learner towards their future role (Alderson, 2007 and Luitel, 2002).

2.1.2.3. Transformational OBET

Transformational OBET is designed as future-oriented and intends to equip all students with knowledge, competency and orientations needed for them to successfully meet challenges, demands and opportunities they face in their careers and lives after graduation. These critical outcomes are the sole determinants of curriculum in transformational OBET. Under this transformational OBET curriculum, teaching and assessment are developed jointly by all stakeholders. In this context, schools are allowed to choose content and use teaching methods of their choice to meet upon intended outcomes and develop means to display the agreed outcomes. This means, the focus is not on just producing good learners to graduate at the end of the school year, but it emphasizes on lifelong learning and appears to be optimistic in terms of the potential of each learner that all learners can achieve an outcome. For this reason, the needs of each student and learning outcome are accommodated through multiple instructional strategies and assessment tools and it ensures educational reform (Maphalala, 2006). Furthermore, Luitel (2002) argues that transformational OBET is a model for system level changes and restructures the whole educational system.

Spady (1992, cited in Ramroop, 2004) state the following important characteristics of transformational OBET:

- Integration of concepts across approach which includes the structure of curriculum, methods and assessment.
- Learners are put first in any curriculum development or learner centered approach.
- Cooperative learning is a key element.
- Progress is monitored using a range of assessment through integrated tasks.
- Educators are responsible to construct meaningful learning to ensure the mastery of outcome and
- Learners progress at their own pace toward mastery of outcomes.

From the above discussions it is clear that transformational outcome based education and training is applicable in TVET institutions in order to satisfy demands of skilled manpower in today's economy. Transformational OBET is the chosen form of OBET system for Ethiopian TVET reform. As addressed by national TVET Strategy of MOE (2008) the current TVET reform reflects an important paradigm shift of recent years which places quality and relevance of TVET as its vision to meet the demands of poverty reduction strategy of the country. MGBBTC is also implementing outcome-based TVET in line with national framework.

2.2. Theoretical Attribution of OBET

2.2.1. Characteristics of OBET

According to Adedoyin (2010) and Acharya (2003), outcome-based education and training is a form of education that restructures conventional education system which requires students to demonstrate what they know and they are able to do after some learning process. In relation to this, anticipated demonstration is defined by setting benchmarks for each level of the program and supposed to include the entire student in the program. However, proposed benchmarks are different in every level of study and able to address and define the goals of the curriculum at each level of learning. Given that, it establishes ways to assess whether students have reached these goals at that level of study. It also ensures commitment in providing an opportunity of education and enables to reach at the required learning outcomes for improvement.

As described by Killen (2000), one of the most important attractive characteristics of OBET is that it support administrators in providing with some level of control over the outcomes of education and at the same time provide teachers with a large degree of freedom to select the content and methods through which they will help their students to achieve intended outcomes.

Likewise, GTZ (2006) and Lauglo (2009) explain that OBET can be considered as the process of educational reform and characterized by a paradigm shift towards a demand and outcome-driven system. This means it responds to market demand for skilled work and it is important for public training providers. A key element here is

the development of feedback to the institution from the labor market in order to adjust TVET and it is an important tool for current needs of TVET system change. Furthermore, the following important characteristics of OBET are outlined by Van der Horst and McDonald (1999, cited in Maphalala, 2006):

- ❖ What learners need to learn is stated clearly and unambiguously. In this case the learning outcomes are future oriented, learner centered, focused on knowledge, skills, attitudes/values, characterized by high expectations of all learners, a base for further instructional decision making and the learner is facilitated towards the achievement of the outcomes along with active and interest in participation of learning process.
- ❖ The learner's progress is based on his /her demonstrated achievement.
- ❖ The focus is on being able to use and apply learned knowledge, skills and attitudes rather than merely absorbing specific or prescribed bodies of content.
- ❖ Learners are advanced because they are able to demonstrate significant skills for independence and future success.
- ❖ Each learner's needs are catered by means of variety of instructional strategies and assessment tools.
- ❖ Each learner is provided the necessary time and assistance to fulfill his or her potential.

2.2.2. Principles of OBET

Like most concepts in education, outcome based education and training has been interpreted in many different ways. In spite of the different interpretations of OBET; it is important to realize in three ways. These are OBET as theory of education, systemic structure for education and as classroom practices. Certainly, all these three ways are needs to be aligned to each other to fulfill underlined purposes and assumptions of OBET (Killen, 2000).

Spady (1994) addresses two important purposes and three assumptions that underpin success of outcome-based education and training.

These important purposes are:

- ❖ Ensuring that students are equipped with the knowledge, competency and qualities needed to be successful after they exit the educational system.
- ❖ Structuring and operating schools to maximize outcomes for all students in order to achieve desired outcomes.

The assumptions include:

- ❖ All students can learn and succeed but not on the same day in the same way.
- ❖ Successful learning breeds success.
- ❖ School controls the conditions that directly affect successful learning.

Those who implement OBET deliberately and consistently have to work around OBET principles in order to put these purposes and assumptions into action;. In this regard, for the successful implementation of the system, OBET principles become concerns of different scholars.

Different scholars distinguish four basic principles that can guide the development and implementation of OBET. These are: clarity of the focus, design down, high expectations and expanded opportunities. Each of these principles is explained as follow:

Clarity of the focus: - This is the most important part of OBET guiding principle. In this principle all teaching and learning activities must be systematically related to the broad and specific outcomes that are identified for the educational program and need to be clearly identified for the students. This idea is essential to help and develop the shared meaning of the focus embraced by the exit outcomes in which the teachers can assess their students and appraise their learning process very validly and reliably (Luitel, 2002 and Killen, 2000).

Moreover, Spady (1994) point out that clarity of focus helps to establish a clear picture of desired outcome. Clear picture of this desired outcome is the starting point for curriculum, instruction and assessment planning and implementation. In this case student success on demonstration is the top priority for instructional planning and student assessment. All of these must be align with the target outcome. And instructional process in the classroom begins with teacher sharing, explaining and modeling the outcome continuously. In general, this enables

students and their teacher to work together as partner toward achieving a visible and clear goal.

Design down: - Curriculum content should flow clearly from the most general valued outcomes, to related more specific outcomes, to class lesson activities. This means staff begins their curriculum and instructional planning where they want students to ultimately end up and build block from there. However, this is challenging but powerful process and become clear when we think of outcomes as falling into culminating, enabling and discreet. In this view, outcomes are representing the building blocks essential to achieve exit level. In this principle, assessment should be integrated with these outcomes in a coherent manner. In this way the program of the study for a student within and across year levels would have a clear relationship to curriculum goals.

High expectations: - This principle requires that successful and challenging learning experiences and achievement of high standards could be part of learning for all students. Identification of the achievement of high standards of performance in relation to criteria established for achievement of outcomes; becomes the focus of assessment in OBET. Through this principle giving learners criteria against which tasks will be assessed before they embark on them and the tasks serve learners to achieve the outcomes (Killen, 2000). Likewise, for Luitel (2002) the high expectation principle of outcome-based education and training elicits major concept that is raising standard of performance. High quality of performance can be labeled as completed using linear horizontal model that eliminates bell shaped thinking of student performance and supporting students continuously to culminate higher level of performance. According to (Spady, 1996 cited in Luitel, 2002) this principle cannot be operated without OBET compatible assessment procedure; because it requires a substance defined standard upon which the assessment is based. In such a way, Spady (1994) distinguishes the following important dimensions of high expectations. These are:

- **Raising standards of acceptable performance:** - this is operated with other principles of OBET.

- **Eliminating success quotas:** - this means OBET system has changed its thinking about how many students should be successful. It abandoned bell curve or quota grading system in favor of criterion based on perspectives and practice that reinforce the previous strategy.
- **Increasing access to high level curriculum:** - this possesses realization of most students shall rise to the level of high expectations regarding every student's ability to reach those ultimate learning results in a quality way insisting that no student is to be written off as incapable of learning successfully.

Expanded opportunities: teachers must provide expanded opportunities to allow for achievement of outcomes in a variety of ways. This is associated with principle of high expectations in the view that different learners may take different routes and different amounts of time or different numbers of attempts to achieve the same outcome.

Spady (1994) noted that the ground rules governing how this principle will be applied should reflect the tension and inconsistencies among student learning rates, effort, delivery and schedules. These principles can be applied in both structured and flexible ways. They also applied to strengthen existing system structures and practices to alter and expand them significantly.

2.2.3. Efficiency and Effectiveness in Outcome-Based TVET System

According to MOE (2010c) Effectiveness is about enhancing performance and answers the questions like: Does the training result in the expected learning of the target population, and is a training programme *doing the right things* to effective learning. It is all about achieving its target. It addresses the impacts on the national development objectives. In this view external effectiveness is associated with improving the chance of finding work, leading to relevant work and leading to added incomes. Internal effectiveness is associated with pass rates or marks achieved showing a demonstrated mastery of specified tasks.

For Gonon (2009) efficiency is the term refers to the actual output proportional to the total input in any kind of system. In terms of education, efficiency is gained by

maximizing output from a given input or it is being achieved by minimum input. In this view, education is said to be efficient if it is successfully geared to current social and economic developments and if it enables learners to apply the acquired knowledge and skills effectively when required.

Likewise, MOE (2010c) takes efficiency as it is optimal use of finances, time and all resources. It is about doing things in the right way. Gonon (2009) distinguishes two forms of efficiency. These are internal and external efficiency. Internal efficiency means that some measures are considered more efficient than others when they better suited to further learning. But external efficiency plays a role notably to the world of work and it is usually associated with cost-benefit analysis to the society than to individuals. But internal efficiency is usually associated with training completion rate, dropout rates, capacity of utilizing of facilities and available human resources. For coombs and Hallack (1987, cited in Girma, 2007) internal efficiency is concerned with the extent to which particular educational goals are achieved with a given input of resources. Gonon (2009) argues that education is efficient if it meets the requirements of professional knowledge and skills.

In general, increasing educational efficiency is very important in the process of capacity building in educational institutions. As pointed by MOE (2010b) increasing the effectiveness *and* efficiency of TVET training is very crucial for developing country like Ethiopia, where every cent should be spent for the desired purpose only. Hence, accelerating the development of the economy at a desired and significant rate is important. Increasing the effectiveness of TVET can be achieved by improving the quality of its outputs and by focusing more closely upon the central purposes of those training calls for a series of effectiveness. This is possible by having a relevant curriculum and relevant training with the appropriate trainer quality and training materials in a relevant occupation that is demanded by the economy.

2.2.4. Curriculum Development

2.2.4.1. General Overview

Curriculum in general, is a plan for learning and it is regarded as central to the education process. Curriculum may be developed and changed in specific circumstances and influenced by various factors. The level of teacher training and available resources are among the determinant factors of curriculum development.

Studies show that educational processes were traditionally regulated through inputs which means via the regulation of the contexts of societal actions. The curricula that define subject-related knowledge to be transmitted are classic instruments of the input regulation of education and training. With this type of regulation educators are responsible but not accountable for the learner's achievement. This means; they cannot fulfill the plan but they conforms the plan that has to be controlled and accounted for the institute or organization (European Centre for the Development of Vocational Training, 2010). Similarly, Sze (2008) explained that with traditional education planning system; students could not adequately prepare for practical life work. Such system is content oriented and graduates are not prepared for the workforce. Lack of emphasis on soft skills needed in jobs is also the deficiencies of curriculum development in traditional education.

According to Tyler (1950, cited Maphalala, 2006) Educational purpose including objective, content, organization and evaluation are key issues in the process of curriculum development and plan instructions. Especially, identifying and formulating objectives for systematically planning educational experiences is an important element to identify both what the learner must be able to do after instruction and the content to which the learner's action applies. This sounds very much like stating an educational outcome.

2.2.4.2. Competency-Based Curriculum Development

According to Van der Horst and McDonald (1999, cited in Maphalala, 2006) competency-based education was introduced in America at the end of the 1960. The main reason was that people like businessmen were starting to question whether

education was adequately preparing scholars for life after school. There was a concern that learners were not taught the actual skills that they would need in a working world. The idea at that time was that competency-based education would focus on an integration of; Outcome goals, instructional experiences and assessment devises to determine whether the learners had mastered the outcomes. In this essence, competency based education supports the idea that all learning is individual and that the individual whether the teacher or the learner, is goal oriented. In this direction teaching-learning process is facilitated if the teacher knows what the learner wants to learn and if the learners know exactly what they are required to learn.

As explained by Kouwenhoven (2009) competence is what students will ultimately do with the knowledge and an ability that the learners acquire is important element. Therefore, the competence-based approach looks beyond the strict boundaries of disciplinary tradition and demands. In this regard, Competence-based approach begins by identifying the essential and integrated capabilities associated with professional practice instead of organizing course content by grouping academic topics or themes drawn from a discipline's set. The description of these capabilities that determine what is learned, practiced and applied is given under various names that have the same meaning. In a competence-based approach this description can be taken from the learning outcomes approach and reflects the actual use of those students would make of the knowledge or course content by students.

Similarly, Kerka (1998) defines competency as the capability to choose and use an integrated combination of knowledge, skills and attitudes with the intention to realistic in a certain context while personal characteristics are part of this context. It can be defined as the possession and application of KSA to perform work activities to the standard expected in the workplace.

In general, each educational program may include a number of courses in a competence-based approach. The leading question that determines teaching and learning in a course as: What capabilities do students need to have after they graduated from the program (Kouwenhoven, 2009).

2.2.4.3. Curriculum Development of Mastery Learning

According to Van der Horst and McDonald (1999, cited in Maphalala, 2006) mastery oriented learners are those learners who focus on learning goals because they value achievement and see ability as being improvable. The mastery learning concept abandoned the idea that learners merely have more or less potential and therefore achieve learning success. In these situations, learning burden is on the teacher to provide the most suitable conditions for effective learning to occur and the importance of the teacher's guidance is noted. Thus, an effort is made to find out why learners fail to reach mastery. Killen (2000, argues that in mastery learning approach students' concern about their ability is reduced because of an increased sense of efficiency and encouragement to attempt challenging tasks.

In general, aim of this learning approach is to ensure that learners are granted the opportunity to be successful at most tasks by providing an appropriate learning environment. However, both competency based education and mastery learning can be used with great success in Outcomes-Based Education and training systems (McDonald, 1999 cited in Maphalala, 2006).

2.2.4.4. Curriculum Development in Outcome-Based Education and Training

Identifying whether the curriculum content is truly relevant to both instructional and occupational setting is one of the questioning aspects in the curriculum development process. Perhaps it seems that one could just sit down and decide which content is most important to include in curriculum; but this implication far from reality. In typical educational setting the curriculum developer is confronted with a variety of factors that may affect the task of determining what should actually be thought. In this regard, time is a critical element in determining the content. But for extensive vocational and technical education content may adversely affect students' general educational development through restriction of course selection (Venkataiah, 2006)

Therefore, curriculum development in Outcome-based education and training is incorporated with transformational issues to change conventional outlook of educational process. In this way, the planned and guided learning experience is

formulated through the systematic reconstruction of knowledge and experiences to reach at intended learning outcomes. It sets clear educational goals and then designs curriculum. These enable teachers to change their approach from being teacher centered to being facilitators and making many significant changes and provide opportunities for students to employ in critical thinking and enables students to meet predefined goals. Therefore, all curriculum and teaching decisions are made based on how best to facilitate the desired outcome and leads to a planning process in reverse of traditional educational planning (Butler, 2004; Booii, 2000; and Norman 2006, cited in Daudau, 2010).

Likewise, Kember (2005) pointed that in OBET the whole curriculum development needs to have a high degree of internal consistency, which is compatible with providing practice in the desired capabilities. It needs to include clearly formulated aims for the development of necessary generic and disciplinary capabilities. The design of the curriculum then needs to ensure that adequate practice is provided in each capability.

Kember (2005) argued the final curriculum content of OBET is thus, customized to meet current requirements and future trends alongside with the understanding of established issues in the academic world. Moreover, for the desired learning outcomes to be achieved, all elements of the curriculum model need to be in performance and consistent with the desired learning outcomes, which in turn need to be compatible with eventual student needs of learning.

Nsibande (2002, cited in Maphalala, 2006) and Davis (2003) noted that OBET is global educational curriculum reform phenomenons that many developed countries have adapted to suit their local needs. It sets comprehensible educational goals to design OBET curriculum that enables students to meet those goals. In this case decisions about the curriculum are driven by means of learning outcomes that learners should demonstrate at the end of the course. Thus, the method of curriculum design encourages teaching to be focus on what students can actually do after they are taught.

According to Aserg (2009) and Butler (2004), for the achievement of intended goal of the preferred outcome is initially selected to make the curriculum that able to

support the achievement of intended outcome. Accordingly, each independent education agencies specifies their own outcomes and methods of measuring student achievement according to predefined goals. This means the establishment of important measurements is starts with clear picture of what is important for students to be able to do and then organizing the curriculum, instruction and assessment to make sure the learning is in due course. The results of this measurement can be used for intended purposes of the teaching-learning improvement.

It is clear from the above discussion that every process of OBET interlinks to each other to reach at required goal. This means, the curriculum indicates what is to be learned, educational goals specify why it is to be learned and the instructional plan point out how to facilitate learning. Thus, curriculum development in OBET is future oriented.

In the Ethiopian context outcome-based TVET curriculum describes the training that a person needs to take in order to perform the work described in the occupational standards. In other words the curriculum provides guidance on entry requirements, duration of training, scope and sequence of learning, training resources, delivery method, recognition of prior learning and institutional assessment (MoE, 2011).

2.2.5. Assessment in Outcome-Based TVET

Assessment is an integral part of teaching- learning process which is used for better understanding of the current knowledge that a student possesses. And, sustained teaching relies on the ability to analyze how learners are learning in relation to what they need to accomplish (Mokab, 2005). Assessment, as explained by Huba and Freed (2000, cited in *Wright College, 2006*) is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know understand and apply as a result of their educational experiences. In this case the ultimate goal is that assessment results are used to improve subsequent learning.

Likewise, assessment is defined as the means of obtaining information which allows educators, learners and parents to make informed decisions about learners' progress (Scottish education department 1991, cited in Mokab, 2005).

From the proceeding definitions it is clear that the way students learn can change the assessment method according to teaching- learning approach and intended goals of the learning outcomes. Consequently, the shift of educational system from conventional learning approach to OBTVET demands enormous changes to be made to the assessment of learning. Thus, with OBTVET being a learner-center and result oriented approach to education it implies that the way learners assessed must be changed accordingly. In this regard, no longer could the old system of end-of-year examinations be sufficient to assess progress of the learners in attaining the outcome. Learners have to work toward an outcome where progress is determined by demonstration (Ramroop, 2004). For the training to be successful, it requires radically new forms of assessment which also needs a radical shift through demonstration assessment, timing, recording and reporting. This also helps for the development of learner by identifying learning problems and monitoring the learner progress. In this regards assessment must be based on specific and clearly defined outcomes (Ramroop, 2004 and Maphalala, 2006).

Mokab (2005) argued that, in order for OBTVET to be realized its intentions; assessment must be move from emphasis on summative as a single event to developmental (formative) assessment. Formative assessment serves as a tool in assisting both the learner and the educator in ascertaining learning progress. In outcome-based education and training curriculum design is strongly linked to assessment. That is, training materials are directly related to the units of competence and the curriculum modules. And it needs to implement valid and reliable assessment procedures. In this regard, well-designed assessment allows students to demonstrate what they know and can do. For this reason, learner's assessment is based on performing competences required by a specific learning outcome and by the occupational standard which needs continuous assessment.

2.2.6. The Role of Teachers in OBET

If courses are planned with an outcomes-based approach the initial task is to identify desired outcomes. However, the intended outcomes are not an end by themselves. The guiding principles are important to reach at desired outcomes. Spady (1994) argued that in Outcome-Based education and training system the outcomes and principles are the main elements to reach at desired goal of learning. In this perspective outcomes are used to guide teachers concerning what they teach in OBET and the principles that enable them how they teach in OBET. Thus, these two elements are regarded as structural components of OBET. Learning outcomes and OBET principles direct teachers toward their role.

According to Killen (2000), in OBET approaches a much stronger emphasis is given to learners' role in the learning process. Because, students are expected to be able to do more challenging tasks other than memorization and reproduce what was taught. However, teacher still set the learning agenda based on OBET principles and outcomes. Teachers need to create high level of interaction with their students to increase their understanding. Berlach (2004), stated that the teacher must continually monitor each student's work, determine what skills and tasks each student has mastered and provide immediate feedback.

In general, teachers are responsible to design, plan, instruct, assess and evaluate as placed in predetermined outcomes. They are also expected to advise, consult, facilitate and provide demonstration based on the goals of instruction.

2.3. Rationale for Outcome-Based Education and Training in TVET System

It is clear from the above section that when education system is based on defined goal and outcomes it is conceived as outcome-based education and training. It aims at equipping learners with necessary skills needed in today's workplace. According to ADB (2008) for complex demands of current global economy most countries intended to ensure their competence needs of the labour market through TVET institutions.

For this reason, attention is shifted beyond basic education to technical and vocational education and training. From this perspective, the rationale behind OBET

in TVET system can be explained from different directions as elaborated in the following sections.

2.3.1. Demand for Skilled Manpower from Recent Economy

The primary purpose of education is to create teaching and learning environments that would produce more knowledgeable, creative and better skilled learners with positive values and attitudes. Now-days, the forces of globalization are likely to lead to radical changes in the world of work (UNESCO, 2002 and Faouzi, 2003). As argued by Cheng (2005) in response to the current drastic impacts of globalization there is strong emphasis on the shift from traditional economy to new technology driven economy. Thus, economic structure and human resource are experiencing some fundamental changes. In this regard, education is expected to be the key element for facilitating these changes. Therefore, human development in education that keeps in line with that condition is a vital element to lead productive, peaceful and satisfying lives.

From this point of view different studies show that TVET is a key instrument to make educational environment to be conducive for the world of work. It is flexible in nature and significantly contributes to global socio-economic development through creation of skilled manpower. For this reason, TVET represents and needs a comprehensive and inclusive approach. Along with these facts, it intended to help people in achieving their full educational and vocational potential in making meaningful contributions to the communities (Tyrer, 2010).

However, as indicated by UNESCO (2002) during the past several decades a mismatch has been evident in many countries between the skills imparted by the national education system and those demanded by the workplace. Thus, reform of TVET institutions has given priority to overcome these problems. Therefore, most countries are working on TVET reform. According to Tyrer (2010) the recent appraisals of the African TVET system conducted by the African Union is one of the important trends that initiate TVET reform. The document argues that with a few exceptions TVET system have been uncoordinated, unregulated and fragmented. Thus results in low quality and poor public perception in the TVET institutions.

Therefore, TVET reform initiatives in the African countries have attempted to overcome these impediments.

In general, demand from recent economy has promoted people across the world to explore ways of redesigning education systems. People search across the world to explore ways of redesigning education systems. Faouzi (2003) point out that the move towards applying outcome-based education and training in handling teaching and learning instructions has been one of the most widely considered topics in educational reform of recent years. Most developing and developed countries are implementing and implemented outcome-based TVET for self employment and competency improvement of their citizens. Mansor (2008 cited in McNeir, 1993) also stated that OBTNET has potential to radically reshape the concept of TVET as we think of it today. As argued by Spady (1994) many advocators of the fundamental reform of education and training system found the results of outcome based system of education and training fruitful. Among others the major changes taking place in our economy and society have placed us squarely in the middle of information age.

2.3.2. Concept of New Vocationalism Initiates in TVET Reform

According to Heaton (1996), new vocationalism is an educational initiative that emerged in an attempt to make educational provision more responsive to industrial needs, and it can be initiated through technical and vocational education. Watson (1993, cited in Heaton, 1996) argues that new vocationalism attempts to bridge the gap between general and vocational education rather than looking them as separate. And it is the education system as a whole and constantly to be reminded to orient toward the world of work. The flow towards vocationalism was subsequently and further nourished by the argument of the demand for highly qualified workers. In this case, qualifications are awarded after proof of acquisition of particular competencies and not by serving a particular length of time in an apprenticeship. It is a flexible transferable skill and replaces the narrow job specific skills of previous attempt of vocational education. Similarly, Gonon (2009) explains that the concept

of current vocationalism can serve current demand of global economy if TVET institutions able to be designed into generation of skilled manpower.

For Rao (2007) the new vocationalism concept of learning is firmly associated with practical emphasis on work-based learning conceived as structuring learning in the work place and providing appropriate on job training. In this approach creating the right environment for the course is crucial component of the planning stage.

According to UNESCO (2003) TVET for the world of work helps to promote good citizenship and expand work opportunities in the twenty-first century. Thus, TVET institutions are expected to fulfill the gaps of demand for work force and thus evaluated from this perspectives. In this regard it is important to redesign TVET institution in to outcome-based approach.

ADB (2008) argues that TVET systems can be evaluated in terms of economic and social relevance and effectiveness of instruction, organization, management and internal efficiency. This can be manifested with a relevant curriculum, training (comprising all the necessary knowledge, skills and attitudes) with the appropriate trainer quality and training materials in a relevant occupation that is demanded in the economy. Therefore, the TVET system should make sure that all work together for the targeted outcomes. For this reason, evaluating TVET in these instances can provide useful framework for major issues in TVET. Accordingly, TVET institutions are likely to be centered on new processes and services that require specialized knowledge and skills not available in general education institutions to serve a wide variety of political, social and economic objectives.

The European Centre for the Development of Vocational Training (2010) argues towards the present trend to more demand-driven TVET systems, in which modularization is a key element in increasing the learner opportunity to select learning pathways and programs based to their preferences. Moreover, this institutional dimension of a learner-centered system, changes in teaching and learning methods also reveal a tendency to put the learner at the centre of the learning process. This shift from teaching to learning is supported through the prescription of compulsory learning arrangements (e.g. interdisciplinary projects and work-based learning periods). Along with this fact, European training

foundation and the World Bank (2001) pointed that the expectation that TVET can be an important instrument to facilitate economic and social development; the existence of an effective and efficient system is important. Therefore, the World Bank needs to link its funding to outcomes as a method of developing responsibility in TVET and raises some conceptual issues that should be carefully assessed within each country strategies. TVET reform is expected to overcome the problems of recent TVET institutions. This means countries in which their TVET system fail to come up with institutional expectation needs to change the conventional system of their training to enhance TVET contribution in economic development with new TVET approach.

For this reason, in most countries there is a strong trend towards outcome-based education and training. Because, by continued use of the traditional supply-driven approaches to skills training, the outcomes they are seeking cannot be achieved effectively. Skills training policy must adopt the new, open learning practices in order to offer a flexible array of livelihood pathways that will enable marginalized people to learn as they work and work as they learn. In this case technologies have important role to support the shift to new, open and interactive learning environments. Thus, it enables to respond to the learners' needs and wishes (UNESCO, 2002). From this point of view basic reform in TVET institutions through outcome-based approach is currently demand of most countries in order to promote TVET contribution in to their poverty reduction strategy.

2.4. Experience of Different Countries

As indicated in the previous section of this study, outcome-based education and training is an important tool in the process of educational transformations and it is applicable to redesign educational system in different field of study. Spady(1994) noted some contemporary areas in wich OBET is aplicable system. These are: technical training programs in the military schools, flight schools, karate institutions and any area of learning where clearly defined performance are essential to carring out a role effectivily. In this regard different countries have

been implemented outcome-based education and training in their educational reform. Experience of different countries is discussed in the following paragraphs.

South Africa has been implementing OBET for the needs of its educational reform. Implementation of outcome-based education in this country was proposed as very important component of its workforce generation. Meyer (2001), noted that Outcome-based education has several advantages for the education and training in the country's demand for skilled manpower of different sectors. It enables learners to know exactly what is expected from them as unit of standards and make it very clear what is required from them. It enables learners to accept responsibility for learning, as they are at the centre of the learning practice and promotes the acquisition of specific skill and competencies in a country in which there are many skills shortages in fostering a better integration between education at school, workplace and higher education levels. Similarly, World Bank (2001) noted that OBET and curriculum 2005 of South Africa was one of the effective educational transformations in the country. It replaces the old approach of teaching; which was primarily focus on chalk and talk, with a strong dependency on textbooks and wrote learning. It able to provides the vision of what learning and teaching should be according to society's goals. In this regard, it incorporates what is to be learned, processes of learning, teaching-assessment, relationships, power and authority in the system as well as in schools.

Egypt was also benefit from the practices of outcome-based education and training in its' educational reform. As indicated in the country's TVET Reform interim activity reports of 2005-2009, the TVET reform programme implements activities that promote a departure from the historically top-down, centralized, fragmented and supply led TVET field. A bottom-up, decentralized, harmonized and demand-driven TVET system has been launched as a feasible alternative by the TVET reform programme of the country. The programme was intended to assist the reform of the technical and vocational education and training (TVET) system. The European commission intervention in this reform represents a notable investment toward the country's human resource development and fostering of a knowledge economy

through development of a skilled workforce and enhancing the competitiveness of Egyptian enterprises. Hence, for Egyptian outcome based approach in the process of TVET reform enables to provide qualified skilled work force into relevant sectors of the country.

In similar approach, Rwanda National Employment Agency and Rwanda Workforce Development Authority close the existing capacity gap concerning the matching of TVET with labor market needs through outcome-based employment oriented education system. The country implements the approach for sustainable economic growth and poverty reduction strategy (MOE of Rwanda, 2008).

In general, the discussions in the preceding paragraph suggest that countries initiate reform in their TVET in order to expand work opportunity and to create responsible citizenship in the contemporary world. Outcome-Based technical and vocational education and training is thus, a timely demand in the process of TVET reform to improve productivity of the sectors.

2.5. Factors that Influence Implementation of OBET

2.5.1. Defining Implementation

As defined by Webster's (1976) implementation in general is the act of implementing or the state of being implemented. To Child Trends Data Bank (2009), implementation for a given program is a series of activities designed to put into place an intervention with defined components and putting the plan to work. It is not a single event but it involves multiple stages and takes place over time. It is an interactive process that involves ongoing decision making.

2.5.2. Standards in the Process of OBET Implementation

In 1989, the high success program on OBET now known as the high success network was working with several Consortia of school of districts across the United States under the sponsorship of small grant from Danforth foundation. As part of that effort, the asset of operational standards consists with OBET purposes and principles were developed to guide implementation efforts (Spady, 1994). These are:

- ❖ A collectively supported mission statement that reflect staff commitment. This includes achieving learning success for all students, higher order exit outcomes that are essential for their future success as students. Also implementing conditions and strategies that maximize all students' opportunities for their success on these significant outcomes.
- ❖ Clearly defined, publicity derived exit outcomes. This directly reflect the knowledge, competence and performance orientations needed for positively contributing learners in an increasing complex, changing world; and all student successfully demonstrate before they leave school.
- ❖ A lightly articulated curriculum framework of outcome performance that is derived directly from these future-focused, higher order exit outcomes, integrates knowledge, competence and orientations across domains of learning and facilitates these exit outcomes.
- ❖ A system of instructional decision making and delivery that consistently assures successful demonstration of all outcomes and performance for all students makes needed instruction available to students on timely bases throughout the calendar year employs a rich diversity of methods and strategies that encourages all students to be successful.
- ❖ A criterion-based, consistently applied system of assessment, performance standards, student crediting and reporting is tightly aligned with all significant future focused exit outcomes, emphasis applied learning in relevant life-role contexts ,encourages students to attain high performance level on everything they pursue, document what student do successfully whenever they are able to do it, enables students to demonstrate and receive full credit for improved learning on timely bases prior to graduation to prevent and avoids undesirable comparison among students.
- ❖ A system of instructional placement, grouping and eligibility that enables students to advance through the curriculum whenever they can successfully demonstrate essential performance prerequisites for new learning experiences.

- ❖ An ongoing system of program improvement that expands; staff vision of potential goals and modes of operation, staff accountability for results of their decision and practices, staff capacities for effective leadership, performance, renewal and change and structures that both encourage staff collaboration as well as support effective and responsive program implementation.
- ❖ A data base of significant, future-focused outcomes for all student plus other key indicators of school effectiveness, which is used and updated regularly to improve the conditions and practices that affect student and staff success.

2.5.3. Barriers in the Process of OBET Implementation

Changing focus from a content-based traditional education system to an outcome-based education and training system is a paradigm shift. Therefore, preparing to adopt an OBET system and to reap its benefits must be aware of that implementation process face with many obstacles. Among these obstacles failure to fully commit to OBET, difficulty in making the transaction and failure to effectively address instructional implications. Thus, committing to the ideas inherent in this system constitutes a dramatic re-evaluation of the nature and function of current education system needs special effort (McNeir, 1993).

Spady (1994) noted that even though numerous practical examples exists outside of the school about outcome-based education and training it may be easy target of criticism and challenged to implement.

2.6. OBET in the Ethiopian Context

2.6.1. General Over View of the Ethiopian TVET

Studies show that the introduction of TVET in Ethiopian education system dated back to more than 50 years. However, the development of the sub-sector was slow and not to the desired level and quality. It was the most neglected area in the history of Ethiopian education system. The institutions have been made insignificant progress in terms of expansion and contribution to economic development. But, after the introduction of the education and training policy of the country in 1994, the number of formal and non-formal TVET provision centers has increased. For the

improvement of TVET access the government of Ethiopia has recognized the importance and the needs for establishing a large number of TVET institutions in effort to promote economic and technological development in the country. The government supports expansion of the system to provide options for the increasing number of school leavers (Edukans Foundation, 2009). The strategic thinking behind the expansion of the TVET sub-sector of the country is to meet the middle level human power of the industry service and commercial sectors which become very essential to the overall development of the country. In this regard, the Ethiopian government has initiated a new push towards creating frameworks conducive to economic and social development through TVET strategy. This National TVET Strategy is an important element of the overall policy framework towards development and poverty reduction (MOE, 2008).

2.6.2. Recent Trends of the Ethiopian TVET

According to AU (2007) the primary objective of all technical and vocational education and training programmes of internationally is acquisition of relevant knowledge, practical skills and attitudes for gainful employment in a particular trade or occupational area. It is an instrument for producing technicians equipped with practical knowledge. Thus, the need to link training to employment either self or paid employment is at the base of all practices and strategies. In recent years, in view of the rapid technological advances taking place in the labour market, flexibility, adaptability and life-long learning have become the second major objective. The third objective, which is particularly important for Africa, is to use TVET as a vehicle for economic empowerment and social mobility and for the promotion of good governance and regional integration.

In the Ethiopian context, TVET institutions are mainly to reproduce new and selected technologies and transfer the same to the relevant industry in order to increase the competitiveness of the sectors based on international standards. The institutions also work for creative capacity building technologies; which are needed for economic development of the country. In this regard, their benefit will be significant as the trainees pass through this process and endowed with outstanding

international workforce principles. Graduates of the Ethiopian TVET institutions are also expected to be job creators rather than expecting jobs to be provided by the government. Therefore, the Ethiopian TVET like many modern TVET systems of other countries is undergoing a reform process. For this reason, outcome-based approach to TVET is a choice for the reform activity of the country (MOE, 2008). Current status of the Ethiopian TVET reform explained in the section that follows.

2.6.2.1. The Ethiopian TVET Reform into Outcome-Based Approach

At present Ethiopian TVET system is undergoing fundamental change in its teaching-learning approach which enhances the goal of poverty reduction strategy. According to MOE (2008) TVET of the country is re-organized into an outcome-based system. This reform is intended to ensure competences needed in the labour market and it become the final benchmark of teaching, training and learning. The purpose of this reform is to make TVET serve as important tools for the countries poverty reduction strategy by different international fund providers. As GTZ (2006) noted the TVET system reform of the country is able to develop a coherent and comprehensive TVET system that allows Ethiopia to train the middle level workforce and it boosts the country's economic growth and competitiveness in global markets. Therefore, the Ethiopian TVET Strategy reflects best international practices regarding governance, management, delivery and financing. This reform also ensures fair rates of funding, standard-based quality assurance and transparent accountability mechanisms and used for any kind of training provided by any kind of providers.

Likewise, the Ethiopian TVET Qualifications Framework addresses importance of a reform from expanded opportunity point of view. MOE (2010f) describes that an outcome-based TVET system creates ways for the fair recognition of the wide range of formal, non-formal and informal training and learning existing in the country. Thus, building an outcome-based TVET system is the centerpiece of the TVET reform. For this reason, the main thrust of the strategy relies on an outcome-based system, dedicated and trusting cooperation among stakeholders. Hence, it opens

access to qualifications for previously neglected target groups and increase chances of an occupational career and creates options for further education and training.

In general, the reform is expected to reflect an important improvement regarding poverty reduction. To this end, it ensures achievement of its intended goals and thus, it is appropriate to address the development needs of the Ethiopian economy.

2.6.2.2. Overview of the Ethiopian National TVET Reform Objectives

Conducting the present TVET reform of the country is taken as a strategic thinking to enhance the contribution of the TVET institutions in economic development. According to the Ethiopian TVET Strategy (MOE, 2008) and engineering capacity building program (2006), the national TVET strategy development is to reflect an important paradigm shift of recent years. It places quality and relevance of TVET as its priority towards the competence needs of the labour market and intended to create a competent, motivated and adaptable workforce in driving economic growth and development. This can be ensured through increased cooperation and partnership with the private sector concerning to governance, planning, financing and implementation of the training. Thus, the development of this strategy involves a broad range of stakeholders from the private and public sectors. Establishing coherent, comprehensive and integrated TVET system based on outcomes rather than curricula is important to bring the intended target of the institutions.

Through outcome-based TVET system the federal government of Ethiopia aspires to meet its responsibility to ensure quality and relevance of the institution by:

- Facilitating the setting of National Occupational Standards which is fairly equivalent to international standards and;
- Organizing an occupational assessment and certification system which offers national occupational qualification certificates to those who have proven, in an assessment that they are competent in accordance with the defined occupational standards.

2.6.2.3. The Ethiopian TVET Qualifications Framework and Accreditation

TVET has a direct consequence on fundamental political, economic and social development. Therefore, TVET transformation is dynamic that needs efforts to find suitable concept and approach how to best standardize the TVET trainer's professional development. From this point of view, it is very important that quality of TVET is significantly depends on the qualification and motivation of the teaching staff combined with other standards. Thus, the general agreement worldwide in relation to trainer's development refers to the creation of an internationally benchmarked TLTQF (MOE 2010g). Hence, the principal function of NTQE is to strengthen mutual trust between the different stakeholders. It also entitled to facilitate the transfer, transparency and recognition of qualifications based on training outcomes which are assessed and certified by respective nationally accredited competent bodies. The NTQF rationalizes all TVET into a single nationally recognized qualification and defines the different occupational qualification levels to be awarded and describes the scope and composition of these qualifications and the degree of responsibility a qualified person can assume in the workplace (MOE, 2010h). In this regard, NTQE is responsible to set the overall frame for the outcome-based TVET system of the country. And it describes five qualifications levels with different descriptor.

Thus, the Ethiopian TVET Qualifications Framework is based on the following assumptions:

- All qualifications will be described using one single set of descriptors, which will be subject to discussions with stakeholders, because these descriptors will be used in the education and training system as well as in the world of work.
- One single set of levels will illustrate all qualifications.
- All qualifications and sub-qualifications will be described and assessed in terms of learning outcomes, regardless of the venue where or the way in which they were acquired.

- All qualifications can, in principle, be organized in units for which a certain amount of learning time can be assumed and corresponding credits at a specified unit level can be granted. Furthermore, units can be packaged to become a full occupational qualification and are aligned to the qualifications hierarchy with the help of rules and descriptors.
- Qualification frameworks and outcome-based standards provide the foundation for a learner-centered training system. This opens up options for individuals and, in doing so, assign them responsibility for organizing their respective education and career path.

The Ethiopian TVET registration and accreditation also depends on the NTQF. For this reason, ministry of education has prepared documents on the process of registration and accreditation. Accreditation of program involves both a status and a process. As a status, it provides public notification that a programs provider meets standards of quality set forth by accrediting agency. As a process, NTQF reflects the fact that in achieving recognition by the accrediting agency, the program is committed to self-study and external review in seeking not only to meet standards but to continuously seek ways in which to enhance the quality of TVET program provided by different providers. Self-awareness can be conducted through simple questionnaire which is filled out by the people in order to assess the system. This assessment is essential to make the trainees to think about themselves, their interests, their values and aspirations in a systematic and focused way and TVET institutions must be consider all necessary physical facilities like library, workshops, and like others (MoE,2010b) TVET institutions must be consider all necessary physical facilities like library, workshops, and like others (MoE, 2010d).

2.6.2.4. Understanding the Ethiopian Occupational Standard

Learning outcomes for required occupational competences are formulated in terms of knowledge, skills and attitude (KSA). Hence, in order to define competence and

learning outcome requirements, it is important to develop a consistent and coherent terminology of competences.

According to MoE (2010f), occupational standard defines the competences required for effective performance in the workplace and describes the work that is performed and expressed as outcomes. Practically, it focuses on workplace activity rather than training or personal attributes through emphasis on outcomes and on the application of skills and knowledge, not just on specification. This means it is concerned with what the person is able to do and also with the ability to do this in a range of contexts. The document must be understandable to employees, employers, supervisors, workers, competence assessors, learners and trainers.

Similarly, the Ethiopian TVET strategy MoE (2008) defines occupational standard as the competences that a person must possess to be able to perform and be productive in the world of work. It includes the entire range of KSA necessary to perform a specific job. The contents are focus on competences required by the occupational fields to reflect real job rather than prescribed requirements of an occupation. Thus, it keeps pace with changes in technology and job requirements. Based on particular work function that focuses on what people are expected to perform (duties and tasks), a unit of competence is measurable and achievable in terms of outcomes. This unit of competence is part of occupation and consists of a series of units of competences. It may be accumulated over time to achieve the full qualification. It can also break down into elements of competence, which must be stated very precisely in order to avoid ambiguity. They include performance criteria to indicate the standard to which the outcome described has to be demonstrated. It includes a range of statements describe the contexts and variations over which the element of competence shall apply.

Occupational standards can be checked for compatibility with the participation of the industry and verified to be in conformity with the national vision according to appropriate internationally recognized occupational standards. Then, it shall be approved as the national occupational standard by the federal TVET agency. And

federal TVET agency prescribe the procedures to be followed for standard setting and publishing them (MoE, 2008).

The national qualification framework is then, based on predetermined occupational standards. When an occupational standard is defined by the respective industry, it is also assigned to a certain level in the NTQF. Assessment towards the qualification at that level is done according to the learning outcomes, duties and tasks specified in the occupational standards (MOE, 2010f). However, as indicated in the national TVET strategy occupational standards development must be based on the needs of labour market analysis. It serves as an instrument to identify the needs for new occupations as well as indicating the need for revision and adaptation of existing national standards once technological or economic developments bring about changes to the qualification needs. For this reason, the labour market analysis can be conducted through local labor market assessments. This can be carried out by the TVET institutions but, regional labor market could be assessed by regional TVET agencies following the economic corridors of the region. During assessments national economic development strategies should be referred. Therefore, regional and local TVET need to check if their training provision mainly targets lower level occupations based on this information (MoE, 2010b).

In general, the Ethiopian occupational standard (EOS) is developed with the direct participation of the industry related to the occupation and ultimate standard. Thus, accreditation process will be based on it. To this end EOS is a corner stone and plays a very important role for the curriculum development and assessment in the TVET system of the country.

MoND is also expected to prepare its own occupational standard based on national occupational standard namely Defense Occupational Standard (DOS) as per its exclusive mission and job behavior that will enable it examine its military technicians with respect to their mission (*DU/MGMBTC, 2010f*). As indicated in MGMBTC (2010b) all designed Programs are intended to develop the necessary knowledge, skills and attitude of the learners to the standard required by the EOS. For this reason, the contents of the programs are in line with the Ethiopian Occupational Standard (EOS).

2.7. Conceptual Model of the Study

The factors that influence implementation of outcome based TVET are drawn based on a synthesis of the literature discussed in the preceding sections. This section presents a brief description of each of the factors and a visual representation of the conceptual model of the study.

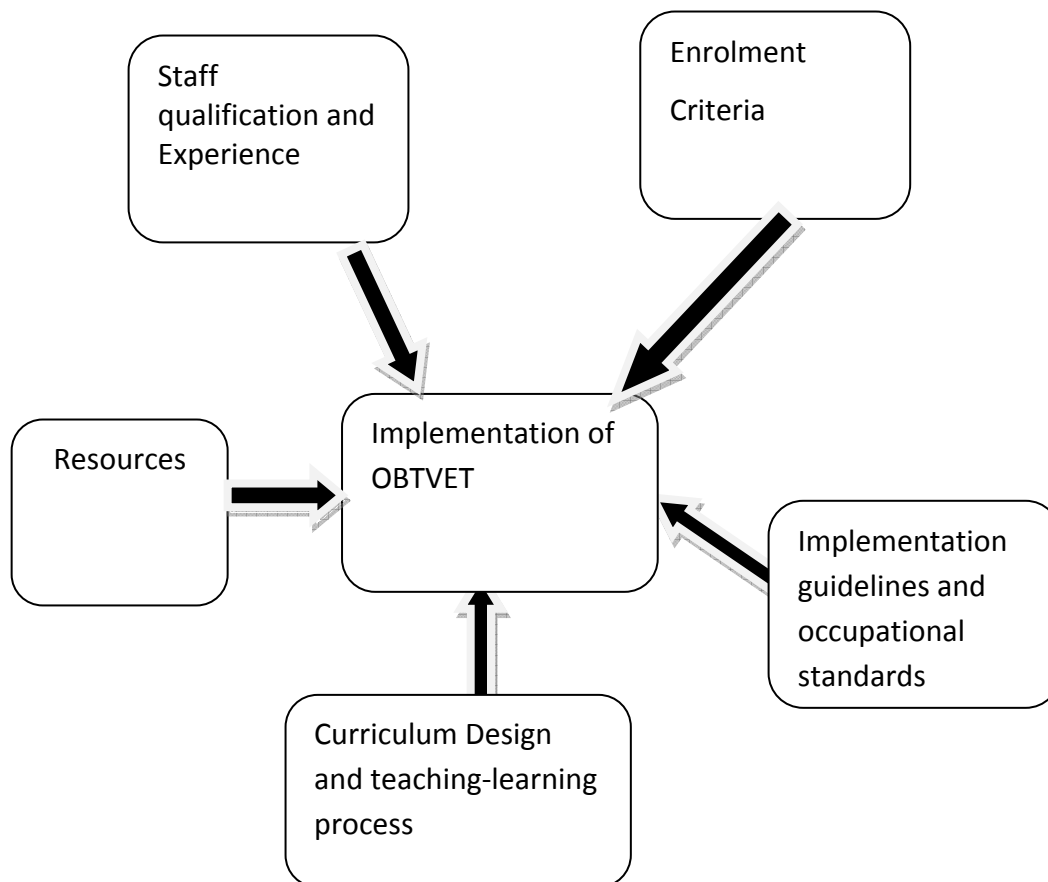


Figure1: Conceptual Model of the Study

As indicated in figure 1 above implementation of OBTVET can be affected by different factors and presented in the following section.

Resources: Due to physical and financial constraints trainings provided by TVET institutions have been mismatched with the demands of skilled manpower in the economy. Thus, by increasing resources invested in TVET it is possible to improve the overall TVET outcomes. In this regard, the process of OBTVET implementation requires proper use of considerable expertise and resources

(MoE, 2008). Hence, availability of sufficient physical and financial resources has directly influence implementation of OBTVET in MGMBTC. This means if the college equipped with necessary resources the pre-designed program can be implemented in appropriate way otherwise it cannot be achieved the required goals.

Staff Qualification and Experience: For proper OBTVET implementation educational qualification of the staff is obligatory. In this regard, NTQE is shall set the overall frame for the outcome-based TVET system of the country which describes qualification levels with different descriptor (MOE, 2010h). In this regard, qualification and experience of academic staffs is essential for the successful realization of educational goals and expected outcomes. Hence, to implement scheduled and designed program of OBTVET existing staff should be equipped with appropriate educational qualification and working experiences. This means if the staff lacks adequate educational qualification implementation of the program can be negatively affected. This is true for MGMBTC and the college expected to possess teaching staff with the required standard.

Enrolment Criteria: According to Ethiopian TVET strategy MoE (2008) the previous approach to TVET training has been fragmented and delivered by different providers at various qualification levels. This means formal TVET was concentrated on secondary school leavers. Non-formal TVET offers were available to other selected target groups. Hence, it did not reach the broader range of groups in need of TVET systems and there was no coordination between public and private TVET supply. This situation resulted in the inefficient production of skilled manpower. In order to overcome this problem TVET system shall address the eligibility requirements in every institution in accordance to national framework.

In this regard, the enrolment criteria used in MGMBTC have direct effect on the implementation practices of OBTVET. To implement the program according to the standard enrolment criteria of the college need to be in accordance with national framework.

Implementation Guidelines and Occupational Standards: Available rules and regulation for teaching learning process in the college have important to guide

implementation of the OBTVET. Occupational standard is one and the most important document in the OBTVET implementation practices. According to MoE (2008) most curricula used in the TVET institutions were not developed based on occupational standards and implementation guidelines. Thus, it has been unable to address the needs of skilled manpower of the economy. In this regard, the new TVET programmes of the country are based on occupational standards. By doing so, teachers, trainers and trainees will be able to contribute to transfer the technology to the industry. Thus, for MGBBTC occupational standard has a direct effect on the proper implementation of OBTVET.

Curriculum Design and Teaching Learning Process: Appropriate and relevant curriculum design that enables an institution to achieve its mission should be developed based on the need assessment of the organization. Provided that, developed curriculum must be delivered using appropriate teaching learning process. According to reviewed literature in this study, TVET system of the world wide has been content-based and traditional training system. Hence, the teaching learning processes were unable to produce skilled manpower for the economy. In this regard, curriculum design and teaching learning process employed in OBTVET is an important factor to address the requirements of the practices.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This study employs concurrent mixed method data collection strategies, because it is helpful to formulate findings that shall be complete and convincing. It believed that concurrent mixed method is useful to compare, complement and triangulate the data obtained from different sources. Appropriateness of this method was distinguished by different scholars. Creswell and Plano (2007, cited in David, 2007) argued that using mixed methods approach is useful to make the findings comprehensive by providing more and complete picture of the problems that is being studied. In this way a researcher can improve his or her confidence in the accuracy of findings through the use of different methods to investigate the same subject. In this view, concurrent mixed data collection can validate one form of data with the other form in order to transform the data for comparison and enables to address different types of questions. Moreover, concurrent mixed method is useful to collect qualitative and quantitative data at the same time. It merges the collected data during analysis or interpretation. To this end, the benefit of concurrent mixed method approach is that, the data produced by different methods can be complementing to each other.

In this regard, to describe the implementation practices of OBTVET in the college, descriptive research design was used. The design was selected on the bases of the theory that it is helpful to gather adequate information from the research participant for the study. The suitability of this design was noted by many scholars. According to Best (1970 cited in Cohen, 2005) many educational research designs are descriptive. Descriptive research design enable to deal with practices that prevail, points of views, processes that are going on, effects that are being felt and trends that are developing. It is helpful to assess how and what exists in relation to some preceding event that has influenced and affected at present condition or event. Similarly, Cohen (2005) argued that descriptive studies look at individuals, groups, institutions, methods and materials in order to describe, compare, contrast, classify

analyses and interpret things and events that constitute their various fields of inquiry.

3.2. Methods

3.2.1. Data Sources

Secondary and primary data sources were used. The primary data were obtained from administrative staff, academic staff of the college and some individuals from MoND training main department. To strengthen the data sources sample of final year regular students from four departments were included.

The secondary data were gathered from different journals, research documents, and report of the official documents, government policy documents, websites, unpublished documents, magazines, news papers, workshop presentations and books.

3.2. 2. Sampling Techniques

Defense University College consists of four colleges. Namely: Defense College of Engineering, Defense College of Health Sciences, Defense College of Resource Management and Major General Mulugeta Buli Technical College. Among the four colleges, Major General Mulugeta Bulli Technical College is that has been implementing outcome-based TVET system. This College contains six departments, namely Armament Technology, Electrical Technology, Auto Tank Technology, Manufacturing Technology, Information Communication Technology (ICT) and Basic science departments. In order to see OBTVET implementation status in the college, four departments were selected using purposive sampling technique. This is based on the fact that OBTVET have been practiced in these four (Armament Technology, Electrical Technology, Auto Tank Technology and Manufacturing Technology) departments.

As a target population for the distribution of questionnaire, there are 105 teaching staffs and 130 final year students in the college. Based on this fact, a simple random sampling technique was used to select 36 (46.7%) teachers and 92(70.8%) of the students. Moreover, the decision of sample size selection has been based on the

assumptions that teaching staff response can be based on real situation and fact judgments as compared to the students. Thus, it is underlying option to take more sample size for the student as compared to teaching staff. Denscombe (2007) argue that the complexity of the competing factors that the decision on sample size tends to be based on experience and good judgment rather than relying on a strict mathematical formula.

Moreover, all department heads, academic dean, head of curriculum review and quality assurance office, registrar and head of psychometric test development section of training main department were interviewed to support the information obtained from the questionnaire. In support of the data obtained from questionnaire and interview, focus group discussion was conducted with 13 teaching staff and 19 students divided into three different groups.

3.2.3. Data Collection Instruments

Human experience is varying within an individual and groups. As a result of this fact it is not advisable to use a single instrument. Therefore, different instruments were employed in this study. These are: interview, questionnaire, focus group discussion, observation and document review.

Interview: Interview was conducted with academic dean, department heads, registrar office, curriculum development and quality assurance office, librarians and psychometric test development section of MoND main department. The interview was conducted based on the semi-structured open ended questions and additional questions were raised based on the responses of the participant. The rationale behind interview was based on the assumptions that an interview allow to produce a higher response rate. Seidman (2006) noted that to observe a teacher, principal and counselor provide access to their behavior interviewing allows us to put behavior in context and provides access to understand their action. However, interviewing takes a great deal of time for greater sample size. Therefore, in addition to interview; other instruments were used to obtain required data.

Questionnaire: The questionnaire which contains both open ended and close ended type was employed to gather information from sample teaching staff and

graduating class of the students. This instrument enables to collect large samples and relatively standardized information from the respondents.

Focus Group Discussion: Focus group discussion was conducted at the college with three groups each consisting of 10-11 members to elicit information on implementation of outcome based TVET in the college. The participants were teaching staffs who represent different departments and students from each department. Discussion was taken place based on pre-designed guiding questions and additional questions were raised in order to encourage discussion from all respondents. This FGD enables to understand the reasoning behind the views and opinions under review that are expressed by group members. It believed that through the discussion it is possible to generate more ideas and make an exhaustive argumentation among the group members.

Observation: Observation was used to collect primary data and practical situation of the college. To understand real live situation and to support data gathered using other instruments this method is appropriate. Cohen (2005) argued that observational data is attractive as it affords the researcher with opportunity to gather live data from live situations. It can give an opportunity to understand the context of programmes and to see things that might be unconsciously missed to discover things that participants might not freely provide in other techniques of data collections and to move beyond perception based data.

Document Review: to see and elicit availability of important document like curricula materials, Defense occupational standard, organizational structure, guide line documents and legislation materials, document review had been undertaken.

3.3. Validity and Reliability

The issue of validity and reliability is important components of quantitative and qualitative data analysis. Validity and reliability are interconnected concepts. This means it can be demonstrated by the fact that a measurement cannot be valid unless it is reliable (Cohen, 2005). In this study both validity and reliability of the items were checked prior to the final distributions of questionnaires. In this regard, to check validity of the items content of the questionnaires were commented by

different experts. Moreover, employment of different instrument in this study can ensure concept of triangulation. Therefore, it is regarded as one way of securing validity. Finally, reliability of items was checked through pilot survey.

3.3.1. Pilot Study

In order to check reliability of the items pilot questionnaire were distributed to 25 students and 20 teaching staffs. Conducting pilot survey enable to shape the questionnaire prior to final data collection. Kothari (2004) noted that before using questionnaire method, it is always advisable to conduct pilot study for testing the questionnaires. Therefore, it is underlying principle to conduct pilot test prior to official data collection to revise an instrument based on the test result. For this reason, Cronbach alpha coefficient was estimated using statistical package for social science. According to Cronbach, (1951, cited in Funk, 2007) Cronbach alpha is a measure of internal consistency. In this regards, if coefficient values greater than (or equal to 0.7) it is generally accepted as indicative of a reliable scale otherwise it is not considered as reliable.

Based on the above discussion, internal consistency reliability of the item was checked using cronbach's co-efficient alpha. Accordingly the computed reliability coefficient is 0.92 for the student and 0.89 for teaching staff (see Appendix C). These values suggesting that the items have relatively high internal consistency. Therefore, no significant changes were made to the items of the questionnaires except some minor re-arrangement and refining.

3.4. Techniques of Data Analysis

To analyze the data collected from different sources and based on the specific nature of the data, a variety of methods were employed. Thus, the collected data were coded, edited, and sequenced. To manage the data easily, the raw data was organized in to different categories in accordance with the proposed objectives. In this regard, all the close ended questions of the questionnaire were entered in to the Statistical Package for Social Science computer program and quantitatively analyzed, interpreted and reported using frequency, percentages, mean, standard deviations, t-test and Chi-square test. In this regards, descriptive statistics were

used to summaries responses given by the research participants to the questions while inferential statistics was used to test the responses of the respondents.

The data obtained from the open ended questions of the questionnaire and from all the other tools were qualitatively analyzed using textual descriptions. From the analysis of both quantitative and qualitative, major findings and conclusions were made. Finally, based on the major findings some recommendations were given.

3.5. Research Design and Methodology Frame Work

The research design and methodology used in this study is drawn based on the methods and designs discussed in the preceding sections. The study try to incorporate different data obtained from primary and secondary sources. In order to gather these data varies instruments were used that have been designed to collect both qualitative and quantitative data. Finally, interpretations of the result were based on combination of quantitative and qualitative data. The Figure 2 below presents a brief description of research design and methodologies in order to address visual representation of research design and methodology of the study.

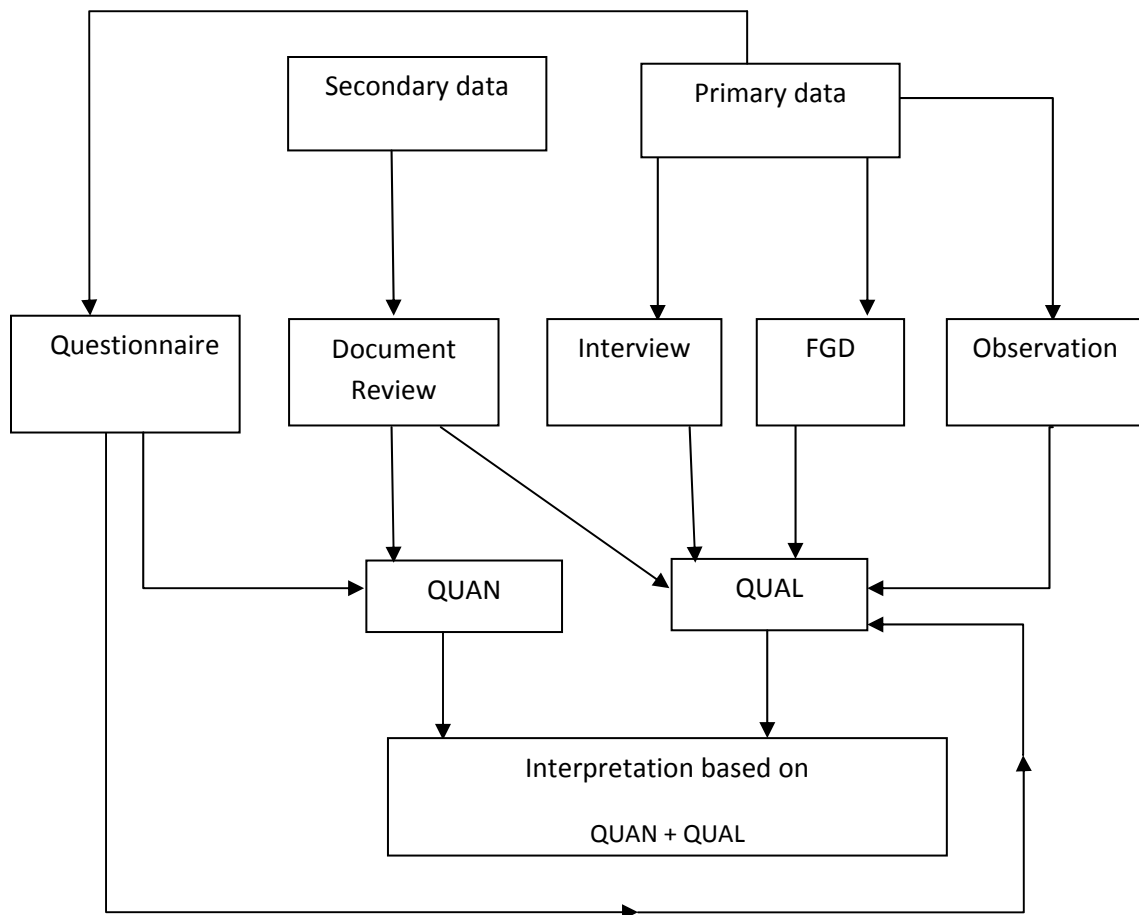


Fig 2. Framework of Research design and methodology of the study

3.6. Ethical Consideration

The researcher respects the rights, values and desires of informants. In this regard, necessary letter of consent had been signed by the officials of the DUC and MGBBTC. Concerning the data obtained from the participants had been confidential and the data collected were served only the objectives of the study. Moreover, materials used for the thesis have been dually acknowledged.

CHAPTER FOUR

4. PRESENTATION AND ANALYSIS OF DATA

This chapter presents results of data analyses gathered using different tools vis-à-vis the basic research questions raised in chapter one.

4.1. Characteristics of Respondents

This section provides a description of the respondent back ground. The researcher believes that it is useful for understanding the situation of the research participants in terms of sex, rank and age. In this regard, Table 1 presents background characteristics of the sample students and Table 2 presents back ground information of sample teaching staffs.

Table1: Sample Student Back Ground

No	Item	Category	Frequency	Parentage
1	Sex	Male	90	97.8
		Female	2	2.2
		Total	92	100
2	Rank	PVT	25	27.2
		NCO	47	51.1
		L/officer	19	20.7
		H/officer	1	1.1
		Total	92	100
3	Age	20 to 25	12	13
		26 to 30	53	57.6
		31 to 40	25	27.2
		> 40	2	2.2
		Total	92	100

As it is shown in the above Table 1, the distribution of the respondents according to sex shows that most 90(97.8%) are male. Very small 2(2.2%) of respondents them are female. To understand the real situation of the gender balance in the college, documented evidence were reviewed and numbers of female students have been smaller than male by far. However, there is no observed gap in the college in promoting female enrolment, but it is a result of availability of female army in the MoND which is beyond the scope of this study.

Data in Table 1 also shows rank of the research participant. Accordingly, a large number 47(51.1%) of respondent are none commissioned officers (NCO). Whereas, very small 1(1.1%) of respondent have been higher officer and the rest proportion observed line officer (middle officer) and PVT. From the same table the distribution of most 53(57.6%) respondent age have been in the range of 26 to 30 and only 2(2.2%) lies above age of 40.

Table2: Sample Teaching Staff Back Ground

No	Item	Category	Frequency	Percentage
1	Sex	Male	33	91.7
		Female	3	8.3
		Total	36	100
2	Rank	PVT	1	2.8
		NCO	10	27.8
		L/officer	19	52.8
		H/officer	1	2.8
		Civil Instructor	5	13.9
		Total	36	100
	Age	22 to 30	21	58.3
		31 to 40	15	41.7
		Total	36	100

Table 2 above indicates the distribution of respondents of teaching staff. According to the Table most of the teachers are male and only 3 (8.3%) of them are female. Similarly, documented evidence indicated that most of the teaching staff in the college observed male. The rank of the teachers ranges from PVT to higher officer. Accordingly, most of the teachers 19 (52.8%) have been line officer, while small number of teaching staff observed PVT and higher officer. Teaching staff also includes civilian instructors with the proportion of 5(13.9%). Further, the table also demonstrates the age of sample teaching staff. Consequently, 21 (58.3%) of the respondent age have been 22 to 30 and the age of the rest proportion lies in the range of 31 to 40. There were no respondent with the age less than 21 and more than 40.

4.2. The Status of OBTVET Implementation in MGBBTC

4.2.1. Employed Inputs

OBTVET implementation requires appropriate and sufficient teaching- learning resources. Thus, to understand existing inputs in the college data were generated and presented in the following sections.

4.2.1.1. Teaching Staff

In the process of teaching learning activity, experience and qualification of the teaching staff are the most important ingredients. Therefore, the data generated on these points presented in Table 3 and 4 respectively.

Table3: Sample Teachers Experience

No	Range of Experiences(in years)	Frequency	Percent
1	Below 2 years	6	16.7
2	2 to 5	14	38.9
4	6 to 10	14	38.9
5	Above 10	2	5.6
Total		36	100.0

As can be seen from the Table 3, majority of the teaching staffs have experiences in the range of 2 to 5 and 6 to 10 years, which is about 14 (38.9%) for both ranges. Only 6(16.7%) of them were with an experience of less than 2 years.

Table4: Qualification of Academic Staff with their department

No	Department	Educational level									
		Diploma		Advanced Diploma		BA/BSc		MA/MSc		Total	
		N	%	N	%	N	%	N	%	N	%
1	Armament technology	3	2.85	-	-	4	3.80	3	2.85	10	9.50
2	Auto tank technology	8	7.62	4	3.81	8	7.62	4	3.80	24	22.85
3	Electrical technology	2	1.90	-	-	15	14.28	6	5.71	23	21.89
4	Manufacturing technology	2	1.90	2	1.90	10	9.52	7	6.67	21	19.99
5	ICT	3	2.85	1	0.95	9	8.57	2	1.93	15	14.30
6	Basic Science	-	-	-	-	5	4.76	7	6.67	12	11.43
	Total	18	17.14	7	6.67	51	48.57	29	27.62	105	100

Source: MGBBTC registrar office staff profile

The above Table 4 shows that there are a total of 105 teaching staffs to provide teaching and trainings in the college. Accordingly, most of the teaching staff academic qualification observed more than BA/BSc. In this regard, out of the total teaching staff 51(48.57%) of them graduated with first degree and 29(27.61%) of the teaching staff had been graduate of masters degree. The Staff with less than first degree accounts 25(23.81%). There is no teaching staff with the educational level more than masters' degree.

According to documented evidence academic rank of the teaching staff varies from graduate assistant one to lecturer and the promotion is based on the legislation guidelines of the college.

Further, to support the data obtained through questionnaire an interview was conducted with office of the registrar. According to the interview most the teaching staff holds adequate educational qualification and experience of teaching to implement OBTVET in the college.

Similarly, the result obtained from department heads were also confirmed the opinions of registrar office. However, shortage of teaching staff was observed in armament technology department and electrical communication of biomedical equipment servicing. Due to lack of qualified staffs in biomedical equipment servicing, it had been more complicated problem in this competence area.

Using FGD additional data have been gathered from the teachers on the relevance of the teachers' experience and qualification level. According to the discussion, most research participant argued with the idea that obtained from the interview. However, the entire participant claims access of short term training on OBTVET. They pointed out that there is no continuous short term training on the new approach to TVET. These participants pointed out that to support available experience with relevant knowledge on OBTVET short term training is needed as mandatory component.

4.2.1.2. Supporting Staff

In order to obtain information on the employed supportive staff, data were gathered through questionnaire and interview. For this purpose sample teaching staff and sample students of the college were requested to give their ratings on availability of supportive staff and access of guidance and counseling services. Accordingly, the research participants provided their valuation in different ways. The mean average and standard deviation of this response summarized in Table 5 below.

Table5: Response on availability of Supportive Staff

No	Comparison Item	Respondents		mean	Std.d	t	Sig.
		Category	Coun t				
1	There are sufficient Supportive staff	Teaching staff	36	3.39	1.110	2.376	0.019
		Student	92	3.73	1.358		
		Total	128	3.63	1.190		
2	Adequate guidance and follow up service has given for the trainees during the class	Teaching staff	36	3.14	0.931	0.777	0.439
		Student	92	3.68	1.249		
		Total	128	3.53	1.190		

The above response is based on research instrument with five response alternatives or categories (strongly disagree, disagree, undecided, agree and strongly agree).

As clearly summarized in the Table 5 above average mean and standard deviation of the rating scale on sufficiency of supportive staff were 3.68 and 1.129 respectively. However, on this point the means of the responses given by two groups is significantly vary with a t-value of 2.376 that has a significant difference at an alpha level more than 0.01 and less than 0.05.

Regarding guidance and follow up service there had been a mean of 3.53 and standard deviation of 1.190 correspondingly. On this specific points response given by students and teaching staff were comparable. The mean averages of the rating score on both items reveals respondents' moderate agreement on availability of supportive staff and access of guidance and follow up services. However, this result can not address the real situation of guidance and counseling service in the college. In this regard, the response may be based on the fact that teaching staff guide their students on their specific subject areas.

Furthermore, an interview with the college academic dean on the number of supportive staffs confirmed that there is sufficient staff to support teaching learning activity of the college. However, there is a gap in some areas which needs special attention in the process of OBTVET implementation. In this regards, there is no sufficient guidance and counseling services in the college. This means there is no staffs to facilitate such activities. In regard to vocational guidance and counseling service there is an office to provide such services but it is not effective. Similarly, the college curriculum review and quality assurance office confirmed that available office of counseling service is not sufficient enough to support the program implementation. An interview indicated that teachers tried to provide counseling service for their student in their area of study and the college provide induction course for new entrant students regarding the basic concept, implementation and procedures of the programs.

Moreover, FGD were conducted with students at the work shop to elicit data on supportive staff of safety services. According to the discussion there is no full-time first aider in the college. However, college health post provides necessary treatment in the case of injuries at the health post. In order to check standard of supportive staff structure in the college; necessary documents had been reviewed in accordance with MoE standards. From the documentary review evidence, there is no observed structural gap.

4.2.1.3. Financial Inputs

The main source of financial income for the college is allocations of the budget from the MoND. Teaching staff and student of MGBBTC were requested to rate employed financial resources for the purposes of OBTVET implementation. The following Table shows means of respondent rating scale. The rating scale of the response were based on research instrument with five response alternatives or categories namely, strongly disagree, disagree, undecided, agree and strongly agree. This means positively rated response with the mean grater or equal to 3 and negatively rated response with the mean less than three.

This means if the mean value is less than 3, it regarded as negatively rated; and if it is greater than or equal to 3, it regarded as positively rated responses, because the mean average score provided for the rating system is 3.

Table6: Respondents Perception Concerning the Adequacy of Financial Resources

No	Questions(Items)	Teaching staff response (N=36)		Student Responses (N=92)		Total (N=128)		t	Sig.
		Mean	Std.d	Mean	Std.d	Mean	Std.d		
1	Adequate budget is allotted for purchasing capital goods	2.25	1.052	3.64	1.219	3.25	1.328	-0.093	0.000
2	There is adequate budget for running cost	2.50	1.207	2.48	1.190	2.48	1.190	6.024	0.926

As can be observed from Table 6 above average mean and standard deviation of both respondent group (teaching staff and student) on allocation of financial resources for purchasing capital goods and running cost were indicated side by side. Concerning allocated budget for purchasing capital goods; average mean of the response found to be 2.25 for the teaching staff; which had been negatively rated response. In contrast the response obtained from the student on the same item found to be 3.64 (positively rated). On this issue the means of the responses of the teaching staff and student have been significantly different with a t-value of -0.093 that has a significant difference at an alpha level less than 0.01. Even though from this it is weak to demarcate real situation from the result, average mean of the response obtained from the sum of the both group is 3.25.

Regarding adequacy of the budget for running cost the result obtained from both group (teaching staff and student) observed comparable and rated negatively. This means there is no significant different between teaching staff and student responses. Hence, the total mean average result is 2.48.

In order to clarify and communicate the result obtained through questionnaire an interview was conducted on the same issue and all the department heads claimed

that budget allocation for capital goods and running cost is inadequate to run continued and scheduled program. This financial constraint has negative impact on the day to day teaching-learning activities. Therefore, the result obtained from teaching staff with support to an interview result can address the real condition of allocated budget.

4.2.1.4. Physical Facilities

Data were collected to know availability of physical facilities in the college. In this regard, the data obtained through document review is presented in the Table 7 and Table 8 below.

Table7: Average Spaces in the College for Teaching-Learning Activity

No.	Rooms	Area in meter square
1	Average available instructional room for theoretical instruction per student	1
2	Computer room per trainee	2
3	Workshops per student	2

As can be seen from Table 7 above average available instructional room for theoretical instruction has been 1 meter square, computer room 2 meter and workshops 2 meter square per student. This means average space provided by the college have been below the standard of MoE. According to MoE standard space required is 1.2 meter square for instructional training, 1.7 meter square per student for computer room and more than 2 meter for ever type of program in the case of workshops (for detail information see appendix F:F1). For similar reason data were generated on available furniture for instructional room as presented in Table 8 below.

Table 8: Available Furniture for Instructional Room

No.	Item	Qty	Size in cm		
			Length	Depth	Height
1	Black board per room	1	200	2	150
2	Notice board per room	1	100	1.5	100
3	Desk/ armchair per room for instructor	1	50	50	100
4	Table	1	150	70	80
5	Chair for instructor	1	50	50	50

When available furniture in the college is compared with MoE standard; except black board or white board most of the furniture fulfills the required standard (for detailed information, see appendix F: F2).

Moreover, additional data were obtained through questionnaire on store facilities from teaching staff and students.

Table 9: Respondents Rating Scale Means and Standard Deviation of Store Facilities

No	Questions(Items)	Teaching staff response (N=36)		Student Responses (N=92)		Total (N=128)		t	Sig.
		Mean	Std.d	Mean	Std.d	Mean	Std.d		
1	Stores for the college academic and logistics material is sufficient	3.31	.980	3.18	.948	3.22	.955	-.642	.522

Table 9 above presents the mean rating scales obtained from the samples on the available stores. The response of teaching staff and students seems almost similar. This means stores for the college academic and logistics material is relatively sufficient. Because the total mean rating scale for this item indicates moderate (3.22) and there is no significant difference between responses of teaching staffs and students.

To communicate the data obtained through document review on infrastructural facility; available infrastructure was seen through participant-as-observer. From the observation it was seen that there exist common teaching facilities like black board,

desk and chair for the instructors. However, in some instructional rooms there were no notice board and in most classrooms there were no projectors. Participant-as-observer was also made during class lecture to see real circumstances of the class rooms. From the observation it revealed that most of the class rooms were overcrowded and inconvenient for teaching learning activity. Further, some of the workshops were observed poorly organized. Even though, workshops for electrical department observed under construction there was no observed progress in the case of armament and auto tank departments. According to the record of the registrar office there are 730 students in the college. However, college library can accommodate only 78(10.68) of the total student at a time. This figure is less than what MoE standard required. Further there is no sufficient Book and recently published articles in the library. The observation and in-depth interview with librarian confirmed that there was no internet access and, reading rooms have been overcrowded.

Concerning internet services FGD were made with teaching staff and students and almost all the research participant argued that there is no sufficient service. Therefore, absences of these facilities affect motivation of the staff toward research and innovation.

Available of safety items were observed insufficient and existing fire extinguishers are not installed in appropriate place. For this specific point one respondent from electrical department replied that there is no regular check for its functionality and it is not in a position to secure work shop activates.

4.2.2. Teaching Learning Process

Appropriate implementation of the teaching-learning activity is the main stage of the implementation of designed programs. Based on this fact data were collected through different tools and presented in the following section.

.2.2.1. Employed Teaching and Assessment Techniques

Teaching staff and students were requested to fill out the questionnaire on employed teaching and assessment technique in the college. The responses obtained from these research participants were presented in the Table 10 below.

Table 10: Teaching Methods and Assessment Techniques

No	Employed Techniques		N	%
1	Employed Teaching Methods	Lecture	25	19.5
		Student center/participatory	57	44.5
		Lecture and student center	46	36
		Total	128	100
2	Employed Assessment technique	At the end of the course exam/Summative	45	35.2
		Continuous/formative	26	20.3
		Irregular program	57	44.5
		Total	128	100

The Table 10 above shows that, out of the total respondents those requested to indicate employed teaching method 57(44.5%) replied that student center is the most common employed teaching method and 25(19.5%) replied that as lecture is the common teaching methods. According to 46(36%) of the total respondents combination of student center and lecture method had been used as teaching method in the college. This means some the teachers used lecture method and others use student center.

To test whether all the teaching method applied in the college were proportionally employed (equally popular) Chi-square test had been computed. The calculated chi-square with degree of freedom of two ($df=2$) is 12.391; which have been greater than the value indicated in chi-square distribution table (standard Table, which is 5.991). And the probability value (Asymp. Sig.) is 0.002 which is less than level of significance 0.05. Therefore, there is significance difference between employed teaching methods in the college. This means there exist significance difference with in teaching methods. (For detail information see appendix D: Table 1).

Regarding assessment techniques most 57(44.5%) of the respondent replied there is no consistent assessment techniques, only 26(20.3%) of the respondent described availability of continuous assessment technique in the college.

For this response chi-square test were checked to see equal proportionality applications of assessment technique in the college. Accordingly, the value of computed chi-square was 11.453 with degree of freedom of two ($df=2$). This value is greater than value indicated in chi-square distribution table (standard Table) and the probability value was (Asymp. Sig.) 0.003. This means it is less than (0.05 level of significance). This value clearly confirms that there is significant difference in equal popularity assessment technique in the college (For detail information see appendix D: Table 2).

Concerning employed teaching and assessment techniques focus group discussion was conducted with teaching staffs. This group assured that the college tries to follow the teaching – learning policy which is set by MoE, but due to different reasons application of learner- center approach and continuous assessment is not properly addressed. Most of the research participant claims that implementation of student center methods of teaching and a continuous assessment technique needs more teaching-learning resources, which is insufficient. In this regard, one respondent from electrical department, implementation of continuous assessment requires sufficient laboratories and demonstration rooms with important inputs to see the level of student achievements. But there exists shortage of demonstration facilities that inhibit implementation of continues assessment. This could be enforcing teachers to make assessments at the end of the course and as required based on the accessibility of facilities, because available workshops cannot accommodate required students at a time. Similarly, to see student competence performance it needs to integrate the class lecture with cooperative training, but due to limited facilities there were no such activities.

Furthermore, to see real situation of teaching method in the college observation (participant-as-observer) was undertaken. From the observation, it was seen that some teachers were active participant rather than facilitators and they delivered lecture without student participation (see appendix E pictures 1 and 2).

4.2.2.2. Employed Instructional Materials and Supplementary Documents

Teaching staff were requested to fill the questionnaire on the issue of instructional material and supplementary document. Response obtained from research participant presented in Table 11 below:

Table 11: Employed Instructional Material and Supplementary Documents

No	Questions item	Responses					
		yes		No		Total	
		n	%	n	%	n	%
1	Do you use appropriate instructional material/aid to deliver the course?	26	72.2	10	27.8	36	100
2	Do you prepare annual plan for each course?	21	58.8	15	41.7	36	100
3	Do you prepare a lesson plan for each lesson?	28	77.8	8	22.2	36	100
4	Did you get the course outlines at the beginning of each course?	91	98.9	1	1.1	92	100

NB: Responses for item number 1 to 3 were obtained from teaching staff and 4 from student.

As it is clearly observed in Table 11 above 26 (72.2%) of the total sample confirmed that they used appropriate instructional materials, where as 10(27.8%) of them replied that they did not use appropriate instructional materials. According to those respondents who were unable to use appropriate instructional materials for OBTVET they replied as if it needs sufficient resources in order to make student to be active participant. This means there is no sufficient facilities to use appropriate teaching aids. Especially there exists a shortage of consumable demonstration resources in the college.

Concerning preparation of annual plan for each course and lesson plan 21(58.8%) of the teachers responded that they prepared the annual course plan, where as 15(41.7%) of them reported that they did not prepare the plans. Similarly, 28 (77.8%) of them used to prepare lesson plans for each course while 8(22.2%) of them did not prepare the plan.

To understand whether student get course outlines at the beginning of each course; data were gathered from student and presented in Table 11 above. From the Table it

is possible to realize that course outline is given to the learner at the beginning of the course. Proportional to the total respondent only 1(1.1%) replied negatively on delivery of the course outlines.

To supplement the data gathered through questionnaires, the focus group discussion was conducted on instructional materials. According to the discussion there is shortage of instructional material to use it properly in the college. Most of the departments indicated that either there is scarce in availability of instructional material or outdated instructional facilities in the college.

To observe real situation on the ground participant-as-observation was conducted. From the observation it confirmed that some of the demonstration materials on hand for teaching-learning activity were seen outdated. For example, some electrical communication and auto tank materials were observed they cannot communicate with current MoND combat equipment (see appendix E pictures E3 for auto-tank demonstration). During observation student from auto-tank department were seen maintaining outdated tank for their final project. To know status of the tank and its model an interview was conducted with syndicate leader of the project team. According to syndicate leader, the tank was outsourced during 1991 and the current tanks in use are not similar with this old one and current tank in use are more sophisticated and advanced. However, this old model can be used for exercise purpose and an indication to evaluate capacity of the students in performing maintenance.

4.2.2.3. Governance and Management

In order to understand governance and management conditions of the college data were collected through document review, questionnaire and interview. In this regards, appropriateness and effectiveness of the governance and organizational structure of the college were reviewed from the college legislation, hiring policy, rules and regulation manuals. According to the college's legislation, the college is governed by management committee. The committee includes college commandant as chair person and the College deputy commandant is the secretary, where as all

the college deans and department heads are the members of the committee. In addition to these members, three representatives from teaching staff and college student affairs is included in the academic commission of the college.

In order to know ways of delegation in the college and conduciveness of the environment for teaching learning activity; sample teaching staffs and students were requested to fill out the questionnaire. Accordingly, the following results were obtained. The rating scale of the response had been based on research instrument with five response alternatives or categories (strongly disagree, disagree, undecided, agree and strongly agree) and presented in the Table 12 below.

Table 12: Ways of Delegation and Teaching-Learning Environment

No	Items	Response	
		N=128	
		Mean	Std.d
1	There is ways of delegation	3.90	1.203
2	The environment for which the college situated is conducive for implementation of outcome-based TVET	3.74	1.218

The result obtained from the Table 12 above is responded positively for both items. This means indicated result (M=3.90) shows that the ways of delegation is appropriate and (M=3.74) indicates the environment is conducive for the implementation of OBTVET.

In order to know perceptions of committee member on ways of the delegation in accordance with document reviewed, interviews were conducted with department heads. Accordingly, they indicated that all the above mentioned committees are functional and every piece of relevant work is delegated to appropriate destination.

4.2.2.4. Guiding Principles

To understand core principles of the college on student admission, staff promotion and certifications the data were generated through different approaches.

4.2.2.4.1. Student Admission and Placement

In order to understand admission and placement situation of the learner, sample students were requested to fill out the questionnaire. Accordingly, the data obtained is presented in the following Table.

Table 13: Student Admission and Placement

No	Question item	Category	N	%
1	Educational level of the candidate at a time of entry	10 th Grade	47	51.1
		12 th Grade	39	42.4
		10 th or 12 th + Certificate	6	6.5
		Total	92	100
2	Reason to join the current department	By placement	30	32.6
		Interest	46	50
		lack of choice	16	17.4
		Total	92	100

As can be observed from the Table 13 above, educational level of the students those joined MGBBTC were 10th, 12th or 10th (12th) plus certificate with percentage of 47(51.1%), 39(42.4%) and 6(6.5%) respectively. Concerning the placement issues most 46(50%) from the total respondent were join their respective department by their own interest while the rest were without their interest. This means even though the college place the students based on their psychometric result it may not confirmed with interest of the candidates.

The academic dean was interviewed whether student interest was considered or not. According to the dean; student's interest is not the only parameter that was seen during the placement. Besides student's interest, there are other parameters that were taken into consideration. Some of these parameters were; the academic background of the student, the opinion of the organization about required manpower to be learned in the college and the college's interest in balancing departments. However, the college tries to consider students' interest in combination with other parameters.

To clarify enrolment criteria used in the college; data were obtained through interview from academic dean and registrar office. As confirmed by the office of academic dean and office of registrar an enrolment of the student is based on the policy set by MoE. However, additional requirement (such as; service year with minimum of two years in the active military, a good working performance, military discipline, rank of NCO or PVT) are additional criteria placed by MoND.

Moreover, in addition to selection criteria the college had used entrance examination to admit competent students; but currently there is only psychometric test that is being given for placement purposes. This means after final nomination based on pre-designed criteria; psychometric test were used to place student in each department. In the process of psychometric testing there were no failed or passed results in the college. The college only used to put students in to departments based on the test result. To communicate this fact with college teaching-learning community focus group discussion had been conducted. Commonly, all of the participants of the discussion argued that currently there is no system of entrance examination. The college enrolls students based on the criteria established by MoND and Psychometric test for placement purposes.

FGD of teaching staff claims that psychometric test were not effective as compared to general entrance examination. This group argued that the test fails to look academic performance of the candidates. Therefore, it is better if it used to come after general academic entrance examination. This means psychometric test needs to be integrated with general entrance examination.

To understand overall components and purposes of the psychometric test that had been used for the college; an interview was conducted with head of psychometric test development section of MoND training main department. Accordingly, as replied by the respondent the main purposes of the test were to choose a competent candidate who has the skills, abilities and other personal qualities to do things in the right way. For this reasons the test included the following components: personal questions, reconnaissance aptitude and technical aptitude.

As argued by the respondent all these components contain important ingredients under each category with pre-designed weighted scores. Therefore, the test system

was incorporating all necessary knowledge, skill and attitude. Hence, it can be used as entrance exam by itself. However, the college was only used for placement purpose and fails to consider the test results for the enrolments. An interview confirms that test result was varying from one to nine and expected to enroll candidates with test result of four or greater than four. The test designs have no zero scores. This means it rates at least one score. This is an indication of appropriateness of the system. However the college fails to use the result. In such a way that psychometric test result had been underutilized and does not satisfy its pre-designed needs and objectives in the college.

4.2.2.4.2. Teaching Staff Promotion and Certification

On the issue of academic staff promotion, interviews were conducted with academic dean and quality assurance office. According to the interview, academic staff promotion is practiced according to the regulation and procedures provided in the college legislation. The college legislation is also in line with the principle of MoE. In this regard, academic commission of the college has the responsibility to see the proposed academic rank of an individual based on the criteria established for this purposes. Further to compare an interview with excising document, legislation of the college was reviewed and there is a clearly written promotion and approval criteria for every level of promotion. Document evidence ensures that a person joining the college as a full-time academic staff can be assigned an academic rank in accordance with the college procedures.

To understand certification issues of the trainers an interview were under taken with the office of academic dean and quality assurance office. Accordingly, there were no a teacher possess any level of certification. But the office of the academic dean explains that necessary qualifications level certification expected in the near future and scheduled to test trainers according to the requirement of MoE.

4.2.2.4.3. Curriculum Design and Teaching Staff Development

An interview was conducted on the issue of curriculum with the office of curriculum review and quality assurance office. According to the interview, curriculum of the

college was developed by the college in line with MoE. To keep the quality of the curriculum, developer of the curricula were received training on the method of curriculum design and how to follow the guidelines in the curriculum development process. In this regard, all the necessary curricula materials were prepared for all programs.

To supplement the above result, document review has been conducted to assess available curricula materials in the college. In this regard, necessary curricula material observed ready for each program being implemented in the college, which is in accordance with MoE standards. However, except for some program in manufacturing department there is no prepared DOS.

Concerning teaching staff development and the issue of training on OBTVET teachers were requested to fill out the questionnaire. Response of this research participant is presented in the following table.

Table 14: Teachers Training on OBTVET

No	Question Item	Response	N	%
1	Have you ever taken any training on the concept of Outcome-based TVET?	Yes	19	52.8
		No	17	47.2
		Total	36	100.0

As can be seen from the Table 14 above, training on outcome-based TVET 17(47.2%) of the respondents was replied that there was no training and 19(52.8%) responded as training were given on OBTVET.

On this issue an interview was conducted with the head of departments and academic dean to generate how far the college trains teaching staffs on new approach to TVET. Most of the respondents, specifically all department heads argued that training on OBTVET system is insufficient and needs special attention in order to equips trainer with better understanding of OBTVET. But , the dean explains that the college had supported teaching staffs in facilitating chance of education with in host universities and aboard universities for the smooth functioning of the teaching-learning processes, however, this is not mean that all the necessary training is given to the teachers regarding to OBTVET. Since OBTVET is

new approaches it needs more effort to bring the staff at required competences. In other hand, there exist shortages of continuous training on the new designed approach of the training.

In general, an interview ensures that there exists written document on teaching-learning policy for the college but fails to implement as pre-planned in the document due to barriers of appropriate understanding among implementers (teachers) about OBTVET.

4.2.3. Challenges in Implementation of Outcome-Based TVET System

To understand factors that hinder implementation of OBTVET data were collected from the college communities. In this instance, data obtained through questionnaire, interview and focus group discussion to answer research question number three had been presented and analyzed under the following sections.

4.2.3.1. Low Awareness

Teachers were requested to fill out whether they have similar idea about OBTVET or not and replied in different ways. The percentage was used to know how many respondents affirmatively replied within departments and in the college.

Table 15: Comparison of Department's Response on OBTVET Idea

N0	Department	Do you think that all your colleagues have similar idea about outcome-based TVET?	Response		
			Yes	No	Total
1	Armament Technology	Frequency(N)	4	1	5
		Percent within department	80	20	100
2	Auto tank technology	Frequency(N)	0	9	9
		Percent within department	0	100	100
3	Electrical Technology	Frequency(N)	4	6	10
		Percent within department	40.0	60.0	100
		Frequency(N)	5	7	12
4	Manufacturing Technology	Percent within department	41.7	58.3	100
	Total	Frequency(N)	13	23	36
		Percent in the college	36.1	63.9	100

As can be seen from Table 15 above, 13(36.1%) of the total respondent in the college affirmatively replied about similar understanding of OBTVET; whereas the most 23(63.9%) of the trainer replied as if there is no similar understanding of OBTVET. Comparing departments the largest response (80%) were affirmative response in armament department and no one replied affirmative response within auto-tank technology department. In the case of electrical technology and manufacturing technology departments there had been similar in their state of response.

Concerning this point FGD was conducted with teaching staff and students. From the discussion it was clearly observed that there was low awareness about the concept of OBTVET. There is no consistence in understanding among the trainers and students of discussion group. The system of information sharing and dissemination between the staff members of the college were seen weak

4.2.3.2. Financial Constraint

As can be understood from the research participant outcome based TVET system needs sufficiently furnished workshops and instructional rooms. All of the department heads argued that lack of up-to-date instructional instruments and running cost for purchase of training materials had been major constraints of OBTVET implementations. Commonly, all the department heads argued on financial burden on the provision of adequate and appropriate teaching resources.

Moreover, respondent from armament technology explain that to equip students with required skill on new models and today's technology, it needs continuous on job training in accordance with industries. But there exist financial deficiency to implement what designed on paper work. On similar issue another respondent from manufacturing technology responded that there is no sufficient financial resource to integrate teaching learning activity with cooperative training. Even though the entire research participant believes on requirement of strong linkage with industries it was hardly possible because of the fact that most industries located at a distance, which transportation needs cost.

Discussion with students and teachers indicates that there have been apparent shifts at the end of education year. However, there is no a system of continuous work-based training in the college.

4.2.3.3. Necessary Conditions for Successful Implementation of OBTVET

Necessary data were generated on condition for OBTVET implementation. According to interview conducted with department heads. Almost the entire research participant of the departments suggests similar opinions. In this regard, well organized training work shop and industrial linkage in order to address the needs of cooperative training can be one of the most tools to implement OBTVET. Trainers needs short term training in order to develop their approach of implementation practices. Moreover, common views of the department heads and participant of FGD have been indicated in the following paragraph.

Adaptability of the OBTVET to all departments needs to be incorporated with relevant industries to develop concept of OBTVET with real world of work. In such a way that continuous teachers training on new technologies and in relation to college program must be integrated with industries to adopt current demands of TVET training. Qualitative data also address the needs of workshops for teachers on the concept of OBTVET. In this regard, it is important to empower teachers and other academic staff to participate in any workshops on OBTVET implementation. This has positive impact on implementation of predesigned program. Similarly, encouraging student-center of teaching-learning approach is needed to enhance student self confidence for their future careers. In this approach teachers should create their own mechanisms that enable them to be competent enough in their activity.

4.3. Discussions

The data gathered from different sources were presented and analyzed quantitatively and qualitatively under background descriptions and vis-à-vis basic research questions. In this section common issues have been brought and briefly discussed in accordance with research questions.

The Status of OBTVET Implementation in MGBBTC: In the process of OBTVET implementation teaching learning inputs are important factors. In this regard, the quantitative analysis of the data obtained through document review from the registrar office indicated that most of the teachers hold sufficient level of qualification in terms of educational achievement. This means more than 50% of the teaching staff holds first degree and above. Similarly, the analysis of the data obtained through questionnaire from the sample teachers indicated that teaching staff of the college possess sufficient experience in terms of service years. According to this result majority of the staff have the experience more than 6 years. On the same issue the qualitative data analysis obtained through interview from each department indicated that the college teachers' educational level and service year is sufficient. In terms of manpower, except biomedical servicing program of electrical department and armament technology most of the departments have sufficient teaching staffs.

Concerning employed supportive staff, quantitative data analysis obtained from the sample of teaching staff and students responded positively. On this point the means of the responses of the sample student and sample teachers were significantly vary with a t-value of 2.376. However, the qualitative result obtained from the academic dean ensures employed supportive staff was sufficient.

Moreover, quantitative result on availability of guidance and counseling service indicated a little bit sufficient with a mean average of 3.53. For this specific issue there were no significant different among respondent groups. In contrast, qualitative data on this point indicated that there is no sufficient guidance and counseling service in the college. Therefore, the result obtained from the qualitative survey reveals that supportive staffs in the areas of counseling service needs improvement. Moreover, qualitative analysis from FGD discloses that there is no an officer to provide first aid service. On this point qualitative survey ensures health post of the college serve students in case of injuries and other required treatments.

Regarding staff structural standard, legislation and organizational chart of the college were reviewed and qualitatively analyzed. According to this documented evidence there exist properly addressed organizational structure and well defined human resource structure.

Furthermore, available financial input for the implementation of OBTVET was analyzed. In this regard, the quantitative result indicates that responses on running cost were valuated negatively. This means the total mean value of the result had been 2.48. For this point there were no significant different between responses of teaching staff and students. Similarly, budget allocation for purchasing capital goods was quantitatively analyzed. However, responses of the teaching staff and student have been significantly different with a t-value of -0.093 that has a significant difference at an alpha level less than 0.01. Thus, it was analyzed qualitatively and the result indicated insufficient allocation of the financial resources. This result complements the result obtained from quantitative analysis.

Regarding employed physical inputs quantitative analysis on space provided indicated insufficient. Available spaces had been observed below standard of MoE whereas, quantitative analysis on available furniture for instructional room have been observed adequate and in line with MoE standers. On these issues qualitative analysis also reveals the same result on both space provided and instructional furniture. However there were no stand projects and notice board in most of instructional rooms. Similarly, some of the demonstration equipments in electrical and auto-tank department were seen outdated and in armament technology there exist scarcity of instructional materials. Workshops of most departments have been observed poorly stocked. Likewise, qualitative and quantitative analysis indicated that library of the college is inadequately organized and poorly equipped. The library can accommodate only 10.68% of total student. This means the library capacity observed below standards. Within the library there is no internet access and, reading rooms are overcrowded. Even in the entire college access of the internet were seen insufficient and have negative impact on research and innovative.

On the issue of safety items, both quantitative and qualitative analysis indicated insufficient allocation of the items. On this specific issue qualitative result address the needs of continuous serviceability check on available fire extinguishers.

Regarding employed teaching methods quantitative analysis show that 44.5% of the total respondent argued on implementation of student center of teaching and the rest proportion used either lecture or student center. This means the view of student center that teachers have indicates an immature understanding of the method. Similarly, employed assessment techniques were quantitatively analyzed and the result revealed only 20.3 % of the respondent replied as if they use continuous assessment technique. The rest proportion replied either summative or irregular. For these two points, chi-square tests were checked to see equal proportionality applications of teaching and assessment techniques in the college. Accordingly, the calculated Chi-square for both items were indicates there is significance difference among implementers on employed teaching methods and assessment techniques. This means the teaching and assessment techniques that are used in the college are not consistent. Qualitative result on these points also discloses similar result as indicated in quantitative analysis.

In the process of OBTVET implementation, the focus of instructional materials is to meet intended goal of teaching-learner activity. For this purposes data were collected and analyzed in regard to this issue. Accordingly, quantitative analysis on the use of appropriate material indicated 72.2% of the teachers were used appropriate teaching materials. However, the rest proportion 27.8% of sample teachers unable to use appropriate teaching materials. According to qualitative result of these points the reason that claimed and observed on inappropriateness of instructional material is indicated as insufficiency of the resources. Moreover, in some cases like electrical and auto-tank departments, there are outdated demonstration equipments. Concerning preparation and delivery of course out line both qualitative and quantitative result confirmed that there is no constraints, teachers prepare course outline on timely base and in proper manner. On this point quantitative result obtained from students show that 98.9% of the total respondent

responses had been affirmative. Similarly, quantitative result on preparation of annual lesson plan and course plan shows sufficient. This means the value for both item indicate confirmatory result.

Circumstances of MGBTC in Implementing OBTVET: Qualitative data analysis from document review and an interview on governance and management show that the college is governed by the committee of all components from each structure of the teaching learning community. This ingredient ensures appropriate responsibility assignment approach of the necessary duties. To communicate and compare this result quantitative data obtained from sample of teaching staff and student were analyzed in regard to appropriate delegation. The result obtained was positively valuated with the mean value of 3.74. This result discloses that appointed committee are functional. In addition to governance and management the research participants were requested to valuate environmental conduciveness of the college. Accordingly, on this specific issue, the result reveals that there is positive perception from the teaching learning community.

Moreover, admission and placement of the student is another important issue of OBTVET in the college. Besides some limitation on placement procedures both quantitative and qualitative result indicated appropriateness of the criteria. This means the college admission is based on predefined MoE stated direction with some additional criteria from MoND need assessment. However, consumption of psychometric result on the process of placement issues was claimed by research participants. This means the way the college used the test results were not in accordance with the objective of the psychometric test. In regard to staff promotion, qualitative analysis from document review indicates that promotion of academic staff of the college is based on pre-designed standards and documented guidelines. From the qualitative result it disclosed that there were no a teacher possess any level of certification, but it expected in near future as scheduled by the college.

Curriculum design and staff development is also a core element of OBTVET. On the approach of curriculum design qualitative result obtained through interview

indicates that developers of the materials had received training on the process of curricula development. In this regard, the college prepared curricula materials for all programmes in the college. These materials were designed based on MoE stated standard in combination with need assessment of MoND. However, except for some programmes in manufacturing department there is no prepared DOS.

In order to implement pre-designed curriculum staff development is important elements. According to qualitative result on this point, except some limitation in regard to short term training on OBTVET concept, the college effort in providing access to university has been strong aspect of the college. However, as a result of limited access to short term training there is inconsistency understanding of OBTVET among teaching staff. In support of this idea, quantitative analysis on short term training indicated that only 52.8 % of the total respondent ensures availability of short term training.

Challenges and Necessary conditions of OBTVET Implementation: The qualitative and quantitative analyses of the data revealed that low awareness among teaching staff and department on the idea of OBTVET for the proper implementation of the program indicated as significant inhibitor. In this regard, the result obtained on common understanding of OBTVET had been 80% in the case of armament technology and nil in the case of auto-tank technology. This means departments are considerably different in regard to overall idea of OBTVET. Similarly, qualitative result on financial constraint indicated as if it is major factors that hinder implementation of OBTVET in MGBBTC. In the process of OBTVET up to date teaching-learning equipment are required, however the result pointed out that financial constraint as major limiting factor in fulfilling this teaching-learning facilities. In this regard, qualitative result reveals the college needs to be give due attention in finding alleviation mechanisms of the problems attached to awareness and financial constraints. Moreover, encouraging student-center of teaching-learning approach is needed to enhance student self confidence for their future careers. In this approach teachers should create their own mechanisms that enable them to be competent enough in their activity.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Four basic research questions were proposed to assess the implementation status, challenges and prospects of OBTVET system in MGMBTC. In order to answer these research questions, data collection instruments were developed, tested and finalized. In this regard, the collected data were presented, analyzed and discussed. Hence this chapter presents summary of the major findings, conclusions of the study and necessary recommendations.

5.1. Summary of Major Findings

The main purpose of this study was to assess the state of implementation of OBTVET and draw the existing challenges and prospects in MGMBTC. Accordingly, this study came up with the following major findings based on analysis of both quantitative and qualitative data.

- ❖ The qualification and work experience of the existing teaching staff is sufficient to undertake their responsibilities. This means more than 50 % of the teaching staff has bachelor degree or higher than bachelor degree. Majority of the teaching staff have an experience of 6 years and above. Moreover, except in electrical departments and in areas of biomedical servicing and armament technology department, there was adequate manpower for all competence areas. However, there is shortage of manpower in guidance and counseling service as well as first aid providers. On this specific issue there was no structural gap. This means the qualitative analysis reveals that the organizational chart of the college has documented the necessary manpower in terms of quantity and components.
- ❖ Concerning financial inputs for both running cost and purchase of capital goods, it was insufficiently allocated. Similarly, physical resource allocation in most cases was seen inadequate. In this regard, in some competence areas of electrical and auto-tank departments there were outdated demonstration materials.

- ❖ Regarding teaching learning process, there were different employed teaching methods and assessment techniques in the college. In this regard, significant numbers of teaching staffs failed to follow the needs of OBTVET. On these issues Chi-square test shows significant difference on similar employability of teaching and assessment techniques.
- ❖ Available spaces for teaching-learning activity in the college were seen insufficient. Library of the college was observed below standard in terms of accommodation capacity and physical facility. It was poorly organized, stocked and without internet access. Similarly, there is no internet in most offices of academic staffs and no well organized and resourced information technology center in the college. Moreover, laboratories and workshops of the college were insufficiently and inadequately equipped. Concerning furniture, except stand projectors and notice board, necessary furniture had been available in most of the instructional rooms. This means existing furniture for instructional room was somewhat sufficient.
- ❖ It was found that circumstances of the college concerning governance and management were characterized by clear and transparent delegating principles. There was appropriate system to enhance teaching-learning community to participate in decision making process. Thus,
 - Except some limitations in the areas of placement issues, the college enrolment procedure appropriately addresses the MoE standards.
 - Promotion of academic staff of the college was based on pre-designed standards. This means principles and regulation of the college were clearly addressed.
 - The processes of curriculum development have been in line with MoE guidelines in combination with MoND need assessment. Thus, curricula materials were fully prepared for each courses and competences. However, except some competences in manufacturing department there were no prepared DOS.

- Access to university education for academic staffs had been strong aspect of the college but, absence of system for competence level certification in the college and lack of short term training on OBTVE had been observed as one negative features of the college.
- ❖ The qualitative analyses of the data indicated that there were financial constraints in the process of OBTVET implementation. In this regard, financial burden is one of the most important factors that hold back the program implementation. The other serious challenge of the OBTVET implementation process in the college had been low awareness of teaching staff in particular and college teaching-learning community in general. Qualitative analyses on the necessary measures in adopting OBTVET indicated that more short term training have to be organized for teachers' to enhance their understanding of OBTVET and to bring the staff into common understanding. Moreover, in order to alleviate financial burden it needs to find ways of generating financial sources.

5.2. Conclusions

Based on the analyses major findings were identified and presented in previous section. Thus, the following conclusions have been drawn from the findings.

- ❖ Educational qualification and years of service of teaching staff have been observed sufficient. Moreover, except for biomedical equipment servicing and some professionals in armament technology department there was relatively enough staffs in terms of numbers and level of qualifications to enhance OBTVET practices. However, there was no assigned officer that facilitates guidance and counseling services. Similarly, available offices and physical inputs were inadequate for proper teaching-learning activities of OBTVET. To facilitate such important ingredients of teaching – learning process, allocated financial budget were seen scarce. For this reason, existing services were unsatisfactory. Beyond these problems employed teaching method and assessment techniques had been inconsistent. Implication of

these conclusions is that the college manpower allocation was primary based on teaching staffs and fail to address the issue of guidance and counseling services, which is an integral part of the effective functioning of OBTVET. MGBBTC budget allocation was based on conventional TVET institutions and unable to fulfill the new approach (OBTVET). Moreover, the college teachers have no common understanding of teaching and assessment techniques that needed in OBTVET. Therefore, it can be possible to conclude that implementation status of OBTVET system in the college was insufficient. However, available teaching staff educational qualification and their commitment in document preparation can improve scheduled program if the college alleviate forgone problems.

- ❖ Governance and management, which is critical to address conditions of the college working principles and implementation of scheduled program the college academic management was organized in appropriate ways and able to work in line with national frame work. For this reason, admissions of the student, staff promotion and issues of curriculum design have been satisfied criteria's of MoE. However, lack of prepared DOS in the case of most competence areas and certification issue had been distinguished as one of the negative aspect of the college working circumstances. Moreover, there is no clear cut guideline on the use of psychometric test in the process of placement.
- ❖ Even though academic community of the college had been integrated and organized in appropriate way, there exists inconsistence in understanding within the staffs about OBTVET. Most of the staff have low awareness about outcome based TVET. In addition to low awareness financial constraint had been another factor that challenging the program implementation.
- ❖ The needs of short term training and panel discussion have been addressed as important factors to alleviate the problems attached to the issue of awareness. Moreover, creation of financial source can improve OBTVET implementation practices through provision of proper facilities. This implies that there is no customized system of short term training in the college.

5.3. Recommendations

Research findings have their own implications and the implications shall suggest possible recommendable actions. Therefore, this study in general, implies that implementation of OBTVET necessitated from the needs of TVET reform, which benefit the country in general and learners and stakeholders in particular. Accordingly, implementation of OBTVET requires necessary inputs, process, working principles and teaching-learning guidelines. Thus, the college need to give due attention on the issue of inputs, teaching-learning process and the occupational standards. From these implications the following can be possible recommendations for proper implementation of OBTVET system in the college.

- ❖ Lack of adequate teaching learning resources was clearly identified especially in the areas of work shop facilities and demonstration items. Therefore, as the availability of this facilities are one of the influential factor in OBTVET implementation process, supplying and facilitating of these equipments in terms of its quantity and quality should be given due attention by MoND and relevant stakeholders. Moreover, the college can find out alternative ways through creation of strong net work and linkage with relevant defense units and institutions. In this regard, it is advisable to work in collaboration with Defense Engineering College to facilitate on line library. This may minimize shortage of up to date reference and enhance innovations.
- ❖ The finding confirmed that the teaching process currently employed in the college is unable to address demands of OBTVET. In this regard, the college has to organize workshops, seminars and panel discussions on OBTVET teaching and assessment approaches. Moreover, MoND needs to assist the college by preparing the ground rule for the teaching-learning process in implementation of OBTVET. An emphasis on this critical issue of teaching learning process can ensure proper implementation of the scheduled program.

- ❖ Even though the college governed with well organized and structured principles, the study indicates that the college lack occupational standard in most competence areas. Absence of occupational standard has adverse effect on implementation of scheduled program. Therefore, in order to pace the training with National TVET Qualification Framework the study recommends that the college and MoND should develop required DOS.
- ❖ A number of challenges had been identified, that hinder the implementation of OBTVET system in MGMBTC; these challenges have mainly emerged from financial burden and lack of awareness, thus the college need to be maintain its resources problem through production of market products. And continuous teaching staff development shall be needed in order to maintain and adapt required knowledge and awareness for proper implementation practices of OBTVET. In this regard, it is advisable to use different system to create consistent awareness on OBTVET to raise teaching staff understanding of the system.
- ❖ As indicated under scope and limitation section of this paper, the study was only concerned to the implementation status of OBTVET at MGMBTC. Thus, this research cannot cover overall training system of MoND. Hence, additional research is needed to clarify challenges in the area of OBTVET implementation issues. More specifically, extended study is required to find out solutions for the problems attached to financial burden, improvement of teacher's awareness and ways of cooperative training in regard to industrial integrations and linkages that enhance work based training. In this view, the study shall provide an opportunity for further research on OBTVET implementation practices.

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APPENDICES

ADDIS ABABA UNIVERSITY

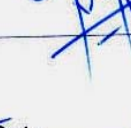
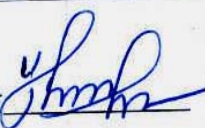
SCHOOL OF GRADUATE STUDENTS

INSTITUTE OF EDUCATIONAL RESEARCH AND DEVELOPMENT

APPENDIX A. Official Consent

1. Official consent for data gathering form

Defense University College and major general muligeta Buli official consent for data gathering form

Name of the researcher: Yohannes Mekonen	Research Topic: The Status of Implementing Outcome-Based TVET system in Major General Muligeta Buli Technical College: Challenges and Prospects	
Position of the officials	Signature	Date
Defense University Commandant /Deputy commandant	 Kedir Ababulgu Afi Vice Commandant Research Edu. Qua. & Relev.	04/09/2011
Major General Muligeta Buli Technical college Commandt/Deputy commandant	 Major General Muligeta Buli	12/04/2004
Major General Muligeta Buli Technical college Academic dean	 Felege Hailu Major College Academic Dean	29/12/2011
Signature of the researcher 	Date <u>30/12/2011</u>	

APPENDIX B. Instruments for data gathering

ADDIS ABABA UNIVERSITY SCHOOL OF GRADUATE STUDENTS INSTITUTE OF
EDUCATIONAL RESEARCH AND DEVELOPMENT

1. Data Gathering Format for secondary data

1.1. Available Spaces in the college for teaching learning activity

No.	Rooms	Area in meter square	Remark
1	Average Available instructional room for theoretical instruction per student		
2	Computer room per trainee		
3	Hall		
4	Average Available technical drawing per student		
5	Library		
6	Workshops per student		

1.2. Available furniture for instructional room in the college

No.	Item	Qty	Size in cm			Remark
			Length	Depth	Height	
1	Black/ white board per room					
2	Notice board per room					
3	Desk/ armchair per room for instructor					
4	Table					
5	Chair for instructor					
6	Chair per students					

2. Guideline questions designed for interview and FGD

General Information

Guidance interview questions conducted with academic dean, head of departments and other academic staff of major general mulugeta buli technical college.

1. What are the major enrolment criteria's for the college? Do you think the criteria developed for the program entry is in line with MoE criteria?
2. Is there a practice of assessing the needs of stakeholders in developing and improving your program? Are the current programs objectives enable to address the needs of stakeholders?
3. Do you believe that there is adequate manpower in your college for the successful implementation of outcome-based TVET system?
4. Is there a system of short term and further training for teachers to achieve the stated goal of the program?
5. Is there any gap in your institutional structure? Is your management system clear for your college community?
6. Do you think that the available work station is sufficient to make the training effective? What type of teaching method employed in your college? Is there sufficient teaching aid in your college?
7. Is there any promotion that initiates learners to be member of different club? If so what are their objective? How do you control its effectiveness?

Thank you in advance for your kind cooperation in spending your time!

3. Questionnaire completed by the college teaching staff

General Information

This questionnaire is designed by graduate student of educational research and development to attempt/study the status of implementing outcome-based TVET system in Major General Mulugeta Buli Technical College. Dear respondents, the quality of your response toward the questionnaire items determines quality of the research output. Therefore, to achieve the purposes of the questionnaire I kindly request you to fill the items with due attention. There is no right or wrong answer. What is required from you is just to show the level of your personal opinion to each item.

Finally, I confirm that the data collected service only the objectives of this study.

Please Note that

- No need of writing your name and no sign in any pages of this questionnaire
- Please read and follow the instructions given for the questionnaires carefully.

Thank you in advance for your kind cooperation in spending your time to fill the questionnaire!

Instruction:-On the alternatives given please put (√) in the box and when you are required to write specific information, write it precisely on the spaces provided.

SECTION ONE: Background Information

1.1. Age (in years)

☐ a) Below 22

☐ d) 41- 45

☐ b) 22 – 30

☐ e) 45-50

☐ c) 31- 40

☐ f) Above 50

1.2. Sex

☐ a) Male

☐ b) Female

1.3. Rank/for Army members/ current position for civilians on space provided.

☐ a) PV T

☐ d) higher officer

☐ b) NCO

☐ e) position for civilians_____

☐ c) Line officer

1.4. Educational Qualification (educational level)

☐ a) Diploma

☐ c) MA/MSc

☐ b) BA/BSc

☐ d) Other/Specify_____

1.5. Field of specialization_____

1.6. Service years in the field of specialization

☐ a) Below two years

☐ d) 6-10 years

☐ b) 2-5 years

☐ e) Above 10 years

1.7. What subject/ field you are teaching in the college?

1.7.1. For how many years did you teach this subject? _____

SECTION TWO

2. Knowledge, implementation of the program, teaching and other facilities

2.1. What do you know about outcome-based TVET? Write your answer briefly.

2.2. Do you think that all your colleagues have similar idea about outcome-based TVET?

☐ a) Yes

☐ b) No

2.2.1. If No what do you think the reason? _____

2.3. Have you ever taken any training on the concept of Outcome-based TVET?

☐ a) Yes

☐ b) No

2.3.1. If yes; how many times _____; where _____; organized by whom _____

2.4. What kind of teaching method are you using to deliver the course?

2.4.1. Among the methods, which one do you think the best method?

2.4.2. Do you employ learner-center approach of teaching?

☐ a) Yes

☐ b) No

2.5. Do you use appropriate instructional material/aid to deliver the course?

☐ a) Yes

☐ b) No

2.5.1. What kind of instructional materials do you use to deliver the course?

2.6. Do you prepare annual plan for each course?

☐ a) Yes

☐ b) No

2.7. Do you prepare a lesson plan for each lesson?

☐ a) Yes

☐ b) No

2.8. Do your students get lab manual?

☐ b) Yes

☐ b) No

2.9. Do you let your students write lab report?

☐ a) Yes

☐ b) No

If your response to question 2.9 is yes, do you mark their report and return it to them with relevant feedback?

☐ a) Yes

☐ b) No

2.10. Do you let your students know the assessment techniques you plan to use in advance?

☐ a) Yes

☐ b) No

2.10.1. What forms of assessment techniques do you use?

2.11. After graduation, what level of knowledge do you expect from your student?

2.12. From which company/organization or industry did your student come?

2.13. Is there any internship or work-base program for your student within the company or organization they came from?

☐ a)Yes

☐ b)No

If yes, how often?_____ If No, why?_____

2.14. What are the weak points of the MGMBTC that hinders the teaching learning environment?

2.15. State anything that you wish to say about this college that may be relevant to the college?

Strong points _____

Weak points_____

2.17. Tick (√) under the appropriate figure for the following items

1=strongly disagree

2=disagree

3=undecided

4= agree

5=strongly agree

No	Item	1	2	3	4	5
1	The environment for which the college situated is conducive for implementation of outcome-based TVET					
2	There is adequate budget for running cost					
3	Adequate budget is allotted for purchasing capital goods					
4	There are adequate training equipments in the training rooms to learn effectively					
5	There is Library with relevant and sufficient copies of books.					
6	There is sufficient Supportive staff for effective implementation of the outcome based TVET program					
7	There is adequate offices for both academic and administrative staff					
8	IT rooms are fully furnished and there is strong database system in the college					
9	There is multi-purpose hall					
10	Safety condition in every workshop is conducive					
11	There is sufficient first aid kit in every workshop					
12	Fire extinguisher for each workshop is available					
13	Stores for the college academic and logistics material is sufficient					
14	The college has adequate relationships with different stakeholders					
15	Adequate orientation and guidance service has given for the trainees at their arrivals and during the class					
16	There is sufficient inspection from immediate supervisors about the teaching learning process					
17	There is ways of delegation					
18	MoND responsible officials supervise and support the college					
19	There is sufficient inspection from external supervisors about the teaching learning process and the supervisors comment is constructive and improve our efficient					

4. Questionnaire completed by the college student

General Information

This questionnaire is designed by graduate student of educational research and development to attempt/study the status of implementing outcome-based TVET system in Major General Mulugeta Buli Technical College. Dear respondents, the quality of your response toward the questionnaire items determines quality of the research output. Therefore, to achieve the purposes of the questionnaire I kindly request you to fill the items with due attention. There is no right or wrong answer. What is required from you is just to show the level of your personal opinion to each item.

Finally, I confirm that the data collected service only the objectives of this study.

Please Note that

- No need of writing your name and no sign in any pages of this questionnaire
- Please read and follow the instructions given for the questionnaires carefully.

Thank you in advance for your kind cooperation in spending your time to fill the questionnaire!

Instruction:-On the alternatives given please put (✓) in the box and when *you are required to write specific information, write it precisely on the spaces provided.*

SECTION ONE: Background Information

1.1. Age (in years)

☐ a) Below 20

☐ d) 31-40

☐ b) 20 – 25

☐ e) Above 40

☐ c) 26- 30

1.2. Sex

☐ a) Male

☐ b) Female

1.3. Rank

☐ a) PVT

☐ c) Line officer

☐ b) NCO

☐ d) other/specify _____

1.4. Educational level of the at a time of entry

☐ a) 10th grade

☐ c) Certificate

☐ b) 12th grade

☐ d) Other/Specify _____

1.5. What is your current field of study in college? _____

1.5.1. Reason to join the field of this study?

☐ a) By placement

☐ c) Lack of other choice

☐ b) My own interest

☐ d) other/specify _____

SECTION TWO: Teaching learning process and facilities

2. 1. Did you get the course outlines at the beginning of each course?

☐ a) Yes

☐ b) No

2.1.1. If yes, do instructors conduct the course according to the course outline?

☐ a) Yes

☐ b) No

2.1.2. Do you get information about the methods of assessment in the course outline?

☐ a) Yes

☐ b) No

2.2. If No what are the possible limitations?_____

2.3. Is the teaching -learning process inviting to let you actively participate in the process?

☐ a) Yes

☐ b) No

2.4. Is your learning progress assessed during course on progress?

☐ a) Yes

☐ b) No

2.4.1. If yes how often?_____

2.5. Are you provided with the opportunity to evaluate your teachers' performance on the teaching -learning activities?

☐ a) Yes

☐ b) No

2.5.1. If yes, are you satisfied with the *competency* of your teachers on their *subject area*?

☐ a) Yes

☐ b) No

2.5.2. If No, please write important comments that you think to be need improvement

2.6. Is the teaching learning process supported by laboratory/ work shop exercise?

☐ a) Yes

☐ b) No

2.7. List down the instructional materials that your instructor used to delivery courses?

2.8. Do you know the teaching method applied by your teacher?

☐ a) Yes

☐ b) No

2.9.1. If yes, please write down employed Teaching Methods

2.10. What is the assessment technique applied by your teacher?

Write down employed assessment technique_____

2.11.1. Do you think that the assessment practice in your college is useful for career development?

☐ a) Yes

☐ b) No

2.12. Have you ever been taken any training on the concept of work based education?

☐ a) Yes

☐ b) No

2.12.1. If yes; how many times_____

Where_____by whom_____

2.14. Tick (✓) under the appropriate figure for the following items.

1=strongly disagree 2=disagree 3=undecided 4= agree 5=strongly agree

SN	Item	1	2	3	4	5
1	The environment for which the college situated is conducive for implementation of outcome-based TVET					
2	There is adequate budget for running cost					
3	There are adequate training equipments in the training rooms to learn effectively					
4	Trainers have sufficient work stations and practice models to run the training properly and					
5	Considering its capacity the college has accepted adequate number of trainees					
6	There are sufficient class rooms to understand each student's level of perfection					
7	There is sufficient Supportive staff for effective implementation of the outcome based TVET program					
8	The relationship between teachers and students are friendly and useful for teaching learning activity					
9	Adequate budget is allotted for purchasing capital goods					
10	The college has adequate relationships with different stakeholders to link the training with practical experience and academic staff and student participate in decision making					
11	There is sufficient first aid kit in every workshop					
12	Fire extinguisher for each workshop is available					
13	There is ways of delegation					
14	Stores for the college academic and logistics material is sufficient					
15	MoND responsible officials supervise and support the college about teaching learning process and the supervisors comment is constructive and improve our efficient					
16	There is sufficient inspection from immediate supervisors about the teaching learning process					
17	Adequate orientation and guidance service has given for the trainees at their arrivals					
18	Adequate guidance and follow up service had been given for the trainees during the class					

Appendix C: Reliability Test Statistics

1. Sample student reliability test

Case Processing Summary

		N	%
Cases	Valid	25	100.0
	Excluded(a)	0	.0
	Total	25	100.0

a Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.920	18

2. Sample teaching staff reliability test

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded(a)	0	.0
	Total	20	100.0

a Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.890	19

Appendix D: statistical tests

Table1: Test Statistics for Applied teaching method

	Applied teaching method
Chi-Square	12.391 ^a
df	2
Asymp. Sig.	.002

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 42.7.

Table2: Test Statistics for Applied Assessment Techniques

	Assessment Techniques applied by the teachers
Chi-Square	11.453 ^a
df	2
Asymp. Sig.	.003

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 42.7.

Appendix E: Pictures



Pictre1: Picture taken while the teacher giving lecture for graduating class



Pictre2: Picture taken during practical demonstration



Pictre3: Picture taken during a group of graduating class students were maintaining tank for their graduate project

Appendix F: Space and furniture standards for instructional

F1. Space standards for training

No.	Rooms	Area needed per trainee (m ²)	Remark
1	instructional room	1.2	
2	Computer room	1.7	
3	Workshops per student		
	Industrial Technology		
	➤ Electricity	4.5	
	➤ Electronics	4.0	
	➤ machine technology	5	
	➤ General Mechanics	6	
	➤ Auto mechanics	6	
Considering the library accommodation capacity is to the standard (25%) of the total number of trainees and if an institution exceeds 280 trainees, the library should be 1.7 m ² per trainee.			

Source: Registration and accreditation of programmes in TVET (Mar, 2010:11)

F2. Standard furniture for instructional room

No.	Item	Qty	Size in Cm			Remark
			Length	Depth	Height	
1	Desk/ armchair	1	55	100	74	Trainee
2	Black board per room	1	80	120	74	Trainer's
3	Notice board per room	1	120	-	100	Per room
4	Desk/ armchair per room for instructor	1	40	56	78	Trainer's
5	Table	1	80	120	74	Trainer's

Source: MoE, Registration and accreditation of programmes in TVET (2010:13)

Declaration

I the under signed, declare that this thesis is my original work and all sources of the material used for the thesis have been dually acknowledged.

Name: Yohannes Mekonen Ejeta

Signature: _____

Date: _____