PREDICTIVE VALIDITY OF CENTER OF COMPETENCE (COC) TESTS: THE CASE OF THREE SELECTED SECTORS OF ADDIS ABABA TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

BY

YOSEF TESHALE

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

INSTITUTE OF EDUCATIONAL RESEARCH

March 2011

PREDICTIVE VALIDITY OF CENTER OF COMPETENCE (COC), TESTS: THE CASE OF THREE SELECTED SECTORS OF ADDIS ABABA TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

BY

YOSEF TESHALE

A thesis submitted to the school of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the degree of Masters of Arts in Educational Research and Development

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

INSTITUTE OF EDUCATIONAL RESEARCH

Acknowledgments

First of all, I would like to express my heartfelt gratitude for my advisor Dr. Wanna Leka for his genuine help throughout my study. Many thanks also go to my family because you were there for me any time in anything. I would also like to appreciate the Institute of Educational Research office for providing the fund for the research. My appreciation also goes to the Center of competence staff who provided me the relevant information for my study. I would also like to thank all the participants of this study. Thank you all!

Table of contents

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

List of Tables

Acronyms

CAMS	Competence Assessment Management System
CBTVET	Competence Based Technical and Vocational Education and Training
COC	Center of Competence
E.C.	Ethiopian calendar
ETQF	Ethiopian TVET Qualification Framework
ISO	International Standard Organization
KSA	Knowledge, Skill Attitude
MOE	Ministry of Education
OS	Occupational Standard
QA	Quality Assurance
QF	Qualification Framework
TVET	Technical and Vocational Education and Training

Abstract

The purpose of this study was to investigate the predictive validity of competence test administered by Center of Competence (COC). The study was conducted on 220 (170 Competent and 50 Not yet competent) candidates of COC from the year 2000 to 2002. The candidates for the study were selected by availability sampling. Supervisory rating forms (Criterion 1) were used to collect the necessary data of the participants and Appraisal questionnaire (criterion 2) were use to triangulate the result of Criterion 1. Quantitative research methodology was used to analyze the data. The result of the questionnaire (Criterion 2) revealed that the competent participants have performance which exceeds the expectation set for their position while the not yet competent participants have performance meet the expectation set for the position and the result of t-test revealed that there is a significant performance difference between the competent and not yet competent candidates. The result of correlation analysis revealed that the competence test administered by COC moderately predicts on job performances of the TVET graduates. The result of one way ANOVA also showed statistically significant mean difference exists between the selected sectors of TVET. The result of independent t-test revealed that there is statistically significant difference between the mean of competent and not yet competent participants and the result of chi-square showed that there is relationship between on job performance and COC scores of the candidates. Finally it was concluded that the competence test predicted the performance of candidates of the test. And the test can be generalized to the selected sectors of TVET that the competence test provided. The competent candidates have better performance than that of the not yet competent candidates. Further more that it would be fine if employers and other stakeholders of COC use the result of COC to make decision.

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

One of the main objectives of education and training is to produce a skilled and viable work force. If this so, educated man power is an asset for the country, the community as well as for the individual itself. Educational institutions are accountable to equip individuals with the necessary knowledge, skills and attitude. For this reason different kinds of assessments are employed to check the utility of education and amendments are made in the curriculum based on the result of these assessments.

To increase the effectiveness of technical and vocational education and training (TVET) the government bodies refer different country experiences and develop new and effective methods to get the maximum benefit from this sector. As the Ministry of Education (MOE) (2006) describes, in 2003, the Ministry of Education together with the Ethio-German TVET Program developed an Ethiopian TVET Qualification System. It served as a basis for the design of the proposed model of the Ethiopian TVET qualification framework (ETQF)

> The 2003 TVET Qualification System already included basic level descriptions outlining the target work environment, the scope of responsibility in the workplace, as well as some initial indications of the expected competence at the different qualification levels. The framework

was designed in such a way that the different programs (10+1/2/3) are building on each other, meaning that the successful completion of one training program provides the entry requirements for the next higher qualification level. This mix of input- and outcome-based approaches led to the development of occupational standards and curricula that compromised the expectations of the industry and would consecutively have limited the potential employment prospects of learners (MOE, 2003, p 12).

The proposed model of qualification is designed to make TVET graduate more employable than the former system. It is based exclusively on learning outcomes, which are defined according to labor market needs. When talking about learning outcomes

Quality Assurance (QA) is a crucial dimension of Qualifications Frameworks (QF) and Commitment to a set of common principles is a pre-condition for cooperation between stakeholders at different levels. There is a need to apply the standards of Quality Assurance and Quality Control to TVET. It can be done by seeking a certification from a standardization organization. As per TVETipedia, Quality assurance mechanism such as the ISO standard is also gaining momentum in TVET. Globally, a number of education and training institutions have now obtained ISO 9001 or ISO 9002 certification (MoE, 2006).

In Ethiopia from 2000 E.C. on; competence assessment center was established. This center operates in different regions of Ethiopia having the

occupational standards as a criterion for measuring the required competence of the candidates. The candidates who successfully pass the assessment of this center are certified and are said to be "competent" and those who are not qualified accordingly said "not yet competent" then given the chance to retake the test when they are ready to do so.

The learning outcome, i.e. competences, is formulated in terms of knowledge, skills and attitudes (KSA). Hence it is important to develop a consistent and coherent terminology of KSA for defining competence and learning outcome requirements. In measuring the competence of the graduates, the center administered paper and pencil test; to check whether they possess the necessary knowledge, and practical test to check that they have the necessary skills. The assessment is done with respect to the level and occupation (department) of the graduates.

Development of the assessment tool is the responsibility of the Ministry of Education (MOE). MOE (2008b) describes while developing the assessment tool MOE deploy a group of test experts and professionals in that particular occupation. This is done as per the occupational standard that is set for each level and occupation by MOE. According to the information of COC registrar offices till 2000-2002 E.C, there are about 35,695 graduates registered, 24,155 of them are assessed and 5,736 of the assessed are said "Competent".

One of the important issues to be raised here is the issue of validity of the assessment tool or tests. "A test was developed with the intentions of predicting some external behavior, The validation is performed to establish that the test was

achieving that purpose, in other words, that it had utility for that purpose"(Robert and Karen, 2007, p 437).The predictive validity of a test tells the predictive power of a test in relation to performance. So that, it is important to check predictive validity of a test administered by COC, as seen in the world of work. This study was conducted to assess the predictive validity of the test administered by center of competency (COC) in Addis Ababa.

1.2. Statement of the problem

The TVET system in Ethiopia is currently undergoing a reform process. The reformed TVET system is to be wage and self-employment-oriented, demand-driven and outcome-based, and thus appropriate to the development needs of the Ethiopian economy. The reform reflects an important paradigm change during recent years that puts quality and relevance of TVET as first priority. Building an outcome-based TVET system is the centerpiece of the TVET reform. MOE (2008a, p 1)

To assure that whether TVET institutions are successful in meeting this objective is very essential, i.e., to measure or check that each of the graduating trainees of (TVET) are equipped with the expected competency that they had to get from the training. To this end, in Ethiopia, Since 2000 E.C an independent testing centre named Centre of Competency (COC) aimed at measuring whether the graduate trainees of TVET possess the required competency was established. These testing centers provide assessment and certification for each occupation of TVET. According to MOE (2002, p 4,) "Occupational assessment and certification is the

means of determining if the person possesses the required competence stated in the occupational standards".

According to Low, (2001) predictive validity test is designed to classify individuals in to a set of categories, either concurrently or prospectively, to determine whether individuals have been classified correctly. So far such a study has not been done in this area. Thus, this study attempts to ascertain the predictive validity of COC tests. The study addressed the following research questions.

1. Are Centre of Competency (COC) tests valid predictor of job performance and training success in Addis Ababa TVET graduates?
2. Do predictive validity of center of competency (COC) tests have the same implication across the sampled Sectors of TVET?
3. Is there significant performance difference and association between competent and not yet competent candidates of COC?

1.3. Objective of the study

General objective

The general objective of this study is to investigate the predictive validity of tests administered by center of competence (COC). Therefore the study aimed at assessing whether the occupational assessment and certification made by the center represent the successful candidate's on work place performance or do the certification really reflect the competent and not yet competent candidates for certain profession.

Specific objectives

- To acquaint the consumers of the research with the concepts of TVET, Competence and about the competence test that is provided by the center of competence.
- To assess whether the predictive validity of the tests can have the same implication across the sampled sectors of the study in technical and vocational education and training (TVET).
- To explain to what extent the tests that are provided by center of competency predict the training success and job performances of the respective candidates of COC.
- To suggest possible recommendations that helps in utilizing the maximum benefit from the test for occupational assessment and certification center, Ministry of education (MOE) and for all stakeholders of COC.

1.4. Significance of the study

In achieving their objective, occupational assessment and certification center should look on whether the tests that they administered have high predictive validity. According to (Stephen G. Sireci, 2007, p 473,) "Validity is not a property of a test. Rather it refers to the use of a test for a particular purpose". To this end, it would be very important to assure whether a test has high Predictive validity to use the result of the test to classify the candidates into different performance category. Accordingly, this study will be significant in the following regards

- It helps to examine the predictive validity of competence test provided by center of competency (COC), So that, it provides information for the assessment center, the employer organizations and the candidates about whether they can use the result of the test to make decision.
- It provides information on the performance level of COC candidates on each components of competence, i.e. Knowledge, Skill, Personal attribute and Behavior.
- It enables stakeholders of COC to re-examine the trends of viewing and understanding center of competency tests.
- It serves as an input and it contribute its share as a source of information for future local, regional as well as nationwide study in different types and areas of COC. And also it will arouse the curiosity and interest of future researchers for further investigation with different dimension of validity.
- It brings the attention of policy maker, test developers and all concerned to give emphasis for issues of prediction power of their test and take the appropriate action.

1.5. Delimitation of the study

The area of this study is delimited to Addis Ababa region; technical and vocational education and training (TVET) graduates who took the center of competence (COC) test and started work by being employed at different organization.

The study dealt only with degree, Diploma and Certificate graduates of TVET who started work by being employed in different private, government and non-government enterprises from the year 2000 to 2002 in Ethiopian calendar in three selected sectors of TVET. This study focuses on the performance of these candidates on the world of work

The reason to delimit the study to Addis Ababa center of competency and some selected sectors of TVET, is because, to assess the predictive validity of each sectors and Occupation (profession) in TVET requires considerably long time and demands a large human and financial resources.

1.6. Limitation of the study

Even if the researcher has tried to carefully examine the dependent variable that is the main essence of the study there was still limitations that are out of the reach of the Methodology of the study. The first one lies in the sampling of the participants. In this respect the sampling technique that is employed for the study was availability sampling. This may cause the samples to lie on participants who have better performance on the job or they may not be the most representative of the population.

The other limitation lies on the instrument. The supervisory rating which is used as the main instrument of the study may have shortcomings to examine each and every detail of the performances exhibited by the employee. There may be inconsistency of rating or appraisal forms used in different organization. And there

may also be some kind of biases in the supervisory ratings. If the supervisor of these employees has good communication with their supervisee the result of the rating may also has the tendency to be biased. There may also be some organizations that have not the culture of rating their employees in an organized way.

1.7. Organization of the Thesis

The thesis consists of five major chapters. The first chapter is the introductory part, in which the background of the study, statement of the problem, research questions, objective and significance of the study, scope and limitation of the study are presented. The second chapter deals with review of related literature which comprises of review of concepts and theories and review of previous research findings to give highlight of the main body of the study. The third chapter deals with the methodology of the research. The Fourth chapter, which is the main body of the thesis deals with the analysis and interpretation of data gathered from different sources. The last chapter contains summary of findings, conclusion and recommendation of the researcher.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Technical and Vocational Education and Training (TVET)

2.1.1. Definition and objectives of TVET

In its broadest sense technical and vocational education and training (TVET) is Making an individual more employable in one of occupations than in another and necessary for occupational success. Different scholars defines the phrase technical and vocational education and training (TVET) as a type of education system mainly designed to lead participants to acquire the practical skills, Know-how, and understanding necessary for employment in particular occupation, trade or group of trades or occupation.

According to UNESCO, (2002) "technical and vocational education" is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and vocational education is further understood to be: an integral part of general education, a means of preparing for occupational fields and for effective participation in the world of work, an aspect of lifelong learning and a preparation for responsible citizenship, an instrument for promoting environmentally sound sustainable development and a method of facilitating poverty alleviation.

The primary objective of all technical and vocational education and training (TVET) program is the acquisition of relevant knowledge, practical skills and attitudes for gainful employment in a particular trade or occupational area. If this so, TVET is a direct means of providing workers with skills more relevant to the evolving needs of employers and the economy. UNESCO, (2000).

> "The empirical importance of vocational learning is overshadowed by the big emphasis society puts on academic education and credits. Despite the fact that there are gradual differences regarding this structural problem, nevertheless this is one of the universal core problems. The "Parity of esteem" between vocational and general education is still wishful thinking but could never be established. Still in the international discourse the prevailing orientation is that vocational education is something old and traditional fitting to the needs of the pre-industrial and industrial societies but not to the so called knowledge societies and economies or that it is at best a solution for low-achieving students" (Grollmann and Rauner, 2007, p. 2).

2.1.2. Reformation in Technical and Vocational Education

The vision of Ethiopian Technical and Vocational Education and Training (TVET) is to "create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods of all Ethiopians and sustainably reducing poverty". MOE, (2008)

In working towards achieving this vision the Government and other responsible bodies of TVET has tried to reform the TVET system in to outcome based

and demand driven. As of MOE, (2006) "In 2003, the Ministry of Education together with the Ethio-German TVET Programme developed an Ethiopian TVET Qualification System. It served as a basis for the design of the proposed model Ethiopian TVET qualification Framework ".

> "The reformed TVET system is to be wage and self-employment-oriented, demand-driven and outcome-based, and thus appropriate to the development needs of the Ethiopian economy. The reform reflects an important paradigm change during recent years that puts quality and relevance of TVET as first priority. Building an outcome-based TVET system is the centerpiece of the TVET reform. " MOE, (2006)

According to the new draft TVET Strategy, MOE, (2008), the proposed ETQF will, define the different occupational qualification levels to be awarded, include level descriptors for each qualification level, i.e. define the scope and composition of qualifications and the level of responsibility a qualified person can assume in the workplace, formulate rules for horizontal and vertical articulation, i.e. rules for moving between different occupational areas and between different qualification levels (pathways).

ETQF can be seen as the roof, which rests on a number of pillars. These pillars are important elements of the TVET system and make the ETQF functional. These elements are occupational standard, Articulation/pathways credit accumulation and transfer, and Assessment and certification.

2.1.2.1. Occupational Standard

Occupational standards define the competences of a worker according to requirements in the labor market. As outlined above, occupational standards comprehensively describe the competence a person has to achieve in order to be considered "qualified" in a certain field. Competence includes the entire range of skills, knowledge and attitudes necessary to perform a specific job. Occupational standards will be developed for all occupational fields at all relevant qualification levels attainable within the TVET system. Each occupational standard can be broken down into units that describe a set of "employable" competences. Occupational standards will be described in the same, nationally approved, format and will be publicly available. This will enhance transparency about occupational qualifications among employers, trainees and TVET providers. MOE, (2006)

MoE, (2006) further explains Responsibility for organizing, facilitating and endorsing occupational standards rests with the Federal TVET Agency. However, as occupational standards reflect the competence requirements of the world of work, stakeholders from the world of work particularly employers will be the major actors in the development of the standards, as they are in the developed and emerging countries. The TVET Agency will, therefore, form expert panels for standard setting, comprised mainly of experts with a profound knowledge of workplace requirements.

Appropriate internationally recognized occupational standards shall be checked for compatibility with the participation of the industry and verified to be in conformity with the national vision. Then it shall be approved as the National

Occupational standard by the Federal TVET Agency. Consensus shall be obtained on the modality of identifying the pertinent standard setting from the internationally recognized ones. The Federal TVET Agency shall prescribe the procedures to be followed for standard setting and publishing them.

MOE (2006) states that Occupational standards must be based on the needs of the labor market. Therefore, the identification and clustering of occupations - for which occupational standards will be developed - will be made with reference to the needs of the national labor market demand. A labor market analysis will be instrumental in identifying the need for new occupations as well as indicating the need for revision and adaptation of existing national standards once technological and/or economic developments bring about changes to the qualification needs.
MOE (2006) further explains that identification and clustering of occupations will be made in close cooperation with the Ministry of Labor and Social Affairs and the Civil Service Agency as well as other concerned bodies to ensure that the TVET occupational standards take into account the defined occupational titles from the National Occupational Classification System.

In a very general term "Occupational standards identify and group tasks associated with a particular occupation and describe the knowledge and skills that a worker must demonstrate to be considered competent in that occupation" MOE (2008b)

MOE (2008b) further explain that, the occupational standards: defines the competencies that a person must possess to be able to perform and be productive in the world of work, is composed of units of competence that define a particular scope

of work resulting in a product, service or decision and is developed by industry experts or practitioners who are in the industry for so many years

2.1.2.2. Articulation/pathways and credit accumulation and transfer

Pathways are road maps guiding individual learners from one qualification to another on pre-defined routes. They provide a mechanism for creating a more open, accessible and relevant education and training system and a vehicle for implementing lifelong learning MOE (2009a).

Articulation is the process of linking two or more qualifications into a sequential and integrated pathway, so that learners can progress from one qualification to the next in a continuum which provides an agreed and transparent amount of credit for achievement of the prior qualification(s) in relation to the destination qualification MOE (2006).

Crediting, credit transfer and accumulation is a process whereby credits, qualifications and learning experiences are given appropriate recognition. It is the granting of status or credit by an institution or training organization to learners for units or elements of competence completed at the same or another institution MOE (2006).

2.1.2.3. Assessment and certification

Assessment is the process of gathering evidence about a learner's competence and making judgments using pre-determined criteria. It uses different methods and instruments (e.g. test, interview, observation and documentation of performance,

simulation, examination) to collect this evidence which is determined by the occupational standard.

MOE (2009b), Assessment will take place at testing centers (e.g. Centers of Competence) and through independent testers, who will be appropriately qualified. If a candidate successfully passed the assessment, he or she will receive a nationally recognized certificate, the occupational qualification.

2.1.3. Quality of Technical and Vocational Training

The quality of technical vocational education and training (TVET), according to the Romanian MOE TVET quality manual (2008), is defined as the totality of characteristics of a learning programme and of its provider, through which the expectations of the beneficiaries and the quality standards are met (QA in education Law).

In TVET, quality is directly related to the achievement of the learning outcomes (knowledge, skills and competence achieved at the end of the learning process) that fulfill the key stakeholders' expectations: students, parents, employers and community, in general

2.1.4. Benefits of Quality Assurance in TVET

According to Romanian MOE quality assurance Manual (2008) of TVET, quality assurance has benefits for different stakeholders of TVET, i.e., students, employers, TVET providers and the community. These benefits are,

For students it promotes student-centered teaching and learning process, assure equal opportunities, it provides good information about the education and training offer, creates responsibility regarding own academic and professional evolution, it promotes learning programmes that meet their expectations (mainly as a result of their active involvement in the self-assessment process at school level) and it increased capacity of employment.

For employers it creates confidence in the quality of vocational education and training, and in the validity of the professional certificates, correlation of the provision of initial vocational training to the demand of the employers, it opens the floor for adjusting the content of the training provision to the needs of the employers.

The quality assurance for TVET providers has many benefits. It creates a feeling of higher legitimacy and acknowledgment for the training center, develop confidence in own offer of vocational education and training, increased satisfaction of beneficiaries (students, employers, parents), foster higher chances of employment for graduates, develop culture of reflection and of continuous improvement for all staff members, it lay responsibility and greater autonomy (by emphasizing the importance of the self-assessment process), creates conducive environment for facilitation of inter institutional cooperation and dissemination of good practice between TVET providers and provide access to information about good practices and experiences of success.

The quality assurance also has also some benefits for the community. It indicates the transparency of TVET programmes' quality, assures the responsibility

of TVET providers as key element in TVET quality assurance, support the decentralization process in technical and vocational education and training, and increasing TVET programmes' attractiveness.

2.2. Competence

2.2.1. The concept of competence

Different scholars define the term competence in various ways according to its different aspects. Some of the definitions are presented below.

"Competence relates to an overall job done well, as measured against a system of minimum standards, and as demonstrated by performance and outputs" (Mulder, 2007). As Mulder stated that work competence is not performing a single phase of job with the intended minimum standards rather it is the totality of the work output as measured against some standard.

Different from Mulder, Mirable define competence as it is revelation of high performance on a job and also it is not only the output of the work, it includes different quality an individual should have. "Competency is knowledge, skill, ability, or characteristic associated with high performance on a job, such as problem solving, analytical thinking, or leadership. Some definitions of competency include motives, beliefs and values." (Mirabile, 1997, p. 75)

Woodruffe also defines competence by relating with the revelation of high level performances. "Competency is defined as the behavior that an employee (or an organization) must perform in a given situation in order to achieve high levels of performance." (Woodruffe, 1991).

"A competency is a cluster of related knowledge, skills and attitudes that affects a major part of one's job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development" (Parry, 1996, p. 50). While defining competence Parry believed that an individual should possess Knowledge, skill and attitude to accomplish a job according to specification which can be acceptable. He also believes in personal development through training and experience. This show that an individual should not necessarily expect to be perfect, it would be enough if he/she has the minimum requirement to complete the job. The perfection will come later.

Spencer and spencer (1993), defines competence in brief and organized way

> "A competency is an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation. Underlying characteristic means that competency is a fairly deep and enduring part of a person's personality and can predict behavior in a wide variety of situations and job tasks. By causally related means that a competency actually causes or predicts behavior and performance. Criterion referenced means that the competency actually predicts who does something well or poorly, as measured on a specific criterion or standard". (p. 9)

However, as some writers suggest getting a good definition for competency will not leads nowhere. In this regard, Stoof et al (as cited in Ayele, 2010) argued that "discussing competence definitions over and over again to reach consensus about

the one and only true meaning of competence is a dead-end road. The one and only true competence definition does not exist, nor will ever be found. " (p. 347) so that a competent person is one who, by definition, is capable of combining—whether explicitly or tacitly—the different aspects of the knowledge, skills and attitude she/he possesses in response to challenges and situations as they arise in particular contexts.

Stoof et al. (as cited in Ayele, 2010) further argued that, in contrast, a constructivist approach releases the search for the absolute truth about competence by allowing a variety of competence definitions. What becomes so important is then not whether we have the 'true' definition but its viability - the extent to which the constructed definition has proved to be adequate in the context in which it is used. As (Glaserfeld, 1995). A quest for the most viable competence definition seems to be much more fruitful. A constructivist approach does not aim at describing competence as an abstract concept , but it rather help the people concerned to pay due attention to their own situation and their own needs to construct a viable competence definition. They stated that the viability of a competence definition increases when based on the analysis of people, goal, and contextual factors, and taking into account that the constructed definition may need to be changed when the situations change in these factors.

A similar argument is also found in the works of many authors as the description and application of the concept of competence widely varies across countries, education systems and human resource development systems. Rauch et al. (as cited in Ayele, 2010) asserted that a number of problems may arise when we deal

with such concept by citing the different interpretation and usage of the term by education policy makers in different OECD countries, by UNESCO, and in numerous education and training reform programs. They emphasized that "the concept of competence will remain a modern meaningless concept" unless it is understood as a social construct based on values and ideological assumptions.

Hager (2004) stated that much of the confusion in the definition and application of the term competence can be traced to questionable assumptions being made about learning as a product. By discussing some of the pervasive misconceptions of the learning process, he argued that a clear understanding of competence may be attained by clearly distinguishing three items, namely performance and its outcomes, the underpinning constituents of competence (capabilities, abilities, skills) and the education, training or development of people to be competent performers.

2.2.2. Competency In TVET

In different sectors of industry and technical vocational institutes, centers and schools, due attention is given to the performance of the craftsmen / apprentices / trainees / students by applying both Competency Based Technical and Vocational Education and Training CBTVET as well as Competency Assurance Management System (CAMS). The purpose of these systems is to provide guidelines to management to set valid and reliable controls in place with a view to have reasonable assurance of meeting their business objectives by assuring that their employees / apprentices / trainees / students are well trained, assessed, verified

and proved to be competent at work location and that they can discharge their responsibilities in a safe and effective manner.

The strategy of Competency Based TVET is based around "Occupational competencies" which are established for each career field and for each job title. A Competency Based TVET System generally uses combinations of powerful techniques to ensure that the needs of different Industry sectors are addressed (demand), courses or competency based training programmes are developed, competency based assessments / verifications are conducted, employees / apprentices / trainees / students are efficiently trained and competent. In this regards, techniques such as Management Information System MIS, Knowledge Management KM, Monitoring & Evaluation M&E and Competency Assurance Management System CAMS are generally used.

In a UNESCO report, JacqesDelors (1996) described the four pillars for the education and training necessary for the 21st century as *learning to know, Learning to do, Learning to be, and Learning to live together.* According to (Erpenbeck and Rosenstil, 2003) these pillars in general correspond to the commonly used classification of competences as Domain competence, methodological competence, personal competences, and social competences.

Owing to the continual changes in the industry, technology, economy and society, the shift of emphasis in TVET has turned to those key competences which help people to deal with the changes in their work places and professions.

Furthermore, Arnold and Pätzold (2009) pointed out the paradigm shift both vocational education and competence development faced recently in order to

prepare the work force required in current and future environment. The need for a systemic approaches to professional development entails that the focus of both TVET and competence development in workplaces should be oriented towards "a cross-occupational" contents and key competences. They asserted that

> "It is apparent that requirement profiles tied closely to particular ``occupations are gradually disappearing. Craft skills are tending to lose importance as selection criterion, where as in modernized areas personality-related qualities and key skills [...] are growing in relevance." (Rauner and Maclean) in Arnold and Pätzold 2009, p 336

Presented in the Table 1 are their comparisons of the changing view of focus in competence development.

Table 1: The changing view of competence development

Competence development – The changing view	
Focus Up Until	**Now Changed Perspective**
Preparation for an "occupation" as a framework for a skilled job	Greater orientation to cross-occupational content and key competences ("de-professionalization")
Idea of a finished training and learning process in the sense of fully rounded initial TVET	Competence development as a lifelong necessity
Orientation to occupational profiles and set curricula (supply orientation)	Orientation to actual demand of regional business conglomerations (demand orientation)
System development on the basis of standards with the greatest possible coverage (state-wide or national)	System development understood as supply appropriate to and tailored to a region (new unit of analysis

(Rauner and Maclean,2009, in Arnold and Pätzold 2009, p 337)

According to MOE (2009, p 6) In Ethiopia Technical and vocational Education and training (TVET) context People are said to be competent when they are "able to

apply their knowledge, skills and attitude required to successfully complete work functions in the workplace in accordance with the occupational standard".

2.2.3. COMPONENTS OF COMPETENCY

The components of competences are different parts of competence that constitutes the overall competence of the candidate. When one candidate is said to be competent he must possess the necessary qualification that the occupation requires. Trainees who are capable to satisfy one of the components and fail to satisfy the other will not said to be competent MOE (2009a). There are four major components of competency: (MOE, 2008b)

1. **SKILL:** capabilities acquired through practice. It can be a financial skill such as budgeting, or a verbal skill such as making a presentation.

2. **KNOWLEDGE:** understanding acquired through learning. This refers to a body of information relevant to job performance. It is what people have to know to be able to perform a job, such as knowledge of policies and procedures for a recruitment process.

3. **PERSONAL ATTRIBUTES**: inherent characteristics which are brought to the job, representing the essential foundation upon which knowledge and skill can be developed.

4. **BEHAVIOR**: The observable demonstration of some competency, skill, knowledge and personal attributes. It is an essentially definitive expression of a

competency in that it is a set of action that, presumably, can be observed, taught, learned, and measured.

The assessment of occupational competence is conducted with the aim of checking whether the candidates are qualified as seen by these components (Knowledge, Skill, Personal attribute and behavior) with respect to their occupation.

People are considered to be competent when they are able to apply their knowledge, skills and attitude required to successfully complete work functions in the workplace in accordance with the occupational standard. Competence involves successful work performance by a person. While assessing competences in a comprehensive way, the four dimensions of competence must be taken into consideration (MOE, 2009c). The four dimensions are: Task skills, which involves undertaking a specific workplace function[s], Task management skills which involves managing a number of different tasks to complete a whole work activity, Contingency management skills this involves responding to problems and irregularities when undertaking a work activity. This may involve dealing with breakdowns, changes in routine, unexpected or typical results or outcomes, difficult or dissatisfied clients and Job/role environment skills which deals with the responsibilities and expectations of the work environment then undertaking a work activity. This may involve: Working with others, interacting with clients and suppliers, complying with standards operating procedures and observing enterprise policy and procedures.

2.2.4. Competence Assessment center and its operation

2.2.4.1. Assessment center

In Ethiopia currently there are assessment centers that provide assessment of competence. According to Assessment and certification manual of (MOE, 2009a), "Assessment center is an accredited institution/ company where occupational assessment takes place by accredited assessors only. It can be a designated or accredited private or public TVET institution or industry". MOE, (2009a)

So that Occupational assessment will take place in designated or accredited public or private assessment centers. Assessments will be conducted by accredited assessors, possibly experts from the world of work or trainers. "This is done b/c in order to improve the employability of TVET graduates, occupational qualifications and certificates need to be recognized by employers. It is therefore vital that experts from the enterprises are essential members of the groups of assessors. As far as possible, relevant business or employers' associations will be integrated into the management of assessment.

Occupational assessment and subsequent certification is the main feature of the outcome-based TVET system to verify individual occupational competences. For all defined occupational qualifications at all levels, occupational assessment and certification will be offered. Occupational qualification certificates will be awarded upon passing the occupational assessments. MOE, (2006)

2.2.4.2. Assessment process

As MOE, (2009a), the first step is to register. Occupational assessment and certification will be accessible to all candidates who feel competent that they meet

the requirements of the respective occupational standard, irrespective of how and where they were trained or learned. Contrary to past practice in Ethiopia, access to occupational qualifications will no longer be dependent on attending a formal TVET programme. Graduates from any formal and non-formal TVET programme will, in the future, have access to occupational assessment and certification, as well as those who have learned informally (i.e. on the job, through traditional apprenticeship or through self-learning). Hence, occupational assessment will be the major tool to integrate different TVET delivery modes and recognize prior learning, significantly increasing access to the TVET system and its qualifications for a greater section of the society.

The second step will be organization of Assessment activities. It includes arranging assessment schedule, assessment tool and any other pre requirements that are helpful to conduct the assessment. The third step is conduct of the assessment; the assessment tool is a confidential document before and after the assessment. The accredited assessors will be responsible to conduct the assessment process.

The next step will be reporting of the result. The assessors will report the result of the candidates to the assessment center on the day that they are assessed. The assessment center has the responsibility of providing the result of the candidates both on hard copy and soft copy. And finally the Center of Competency will announce the number of candidates assessed and qualified. At last the National occupational qualification certificate (NOQC) is issued for the candidates with an overall rating of competent or for those who successfully pass occupational assessment, a National Occupational Qualification Certificate will be issued by the

state TVET authorities upon delegation and on behalf of the Federal TVET Agency. (MOE, 2009b; p 16)

2.2.5. BENEFITS OF USING COMPETENCY MODEL

According to Shiny, (2009), there are some useful benefits of using competency model for the company, managers, and employees as well.

For the company (Employer), reinforce corporate strategy, culture, and vision, establish expectations for performance excellence, resulting in a systematic approach to professional development, improved job satisfaction, and better employee retention, increase the effectiveness of training and professional development programs by linking them to the success criteria (i.e., behavioral standards of excellence), provide a common framework and language for discussing how to implement and communicate key strategies, provide a common understanding of the scope and requirements of a specific role, provide common, organization-wide standards for career levels that enable employees to move across business boundaries.

For managers it helps to identify performance criteria to improve the accuracy and ease of the hiring and selection process, provide more objective performance standards, clarify standards of excellence for easier communication of performance expectations to direct reports, and it provides a clear foundation for dialogue to occur between the manager and employee about performance, development, and career-related issues.

For employers, it used to identify the success criteria (i.e., behavioral standards of performance excellence) required to be successful in their role, support a more specific and objective assessment of their strengths and specify targeted areas for professional development, provide development tools and methods for enhancing their skills and provide the basis for a more objective dialogue with their manager or team about performance, development, and career related issues.

2.3. Validity of a test

2.3.1. Introduction

Test validity is an indicator of how much meaning can be placed upon a set of test results. This means that the test has to measure an individual performance in respect to the objective of the lesson or it should tell us which candidate has the expected competence that they had to get from the training. As Stephen, G., (2007), states that there is no such thing as a generically valid test. Validity must be considered in terms of the correctness of a particular inference about test takers.

Validity of a test according to Stephen, G., (2007), has the following fundamental aspects

- Validity is not a property of a test. Rather, it refers to the use of a test for a particular purpose.
- To evaluate the utility and appropriateness of a test for a particular purpose requires multiple sources of evidence.
- If the use of a test is to be defensible for a particular purpose, sufficient evidence must be put forward to defend the use of the test for that purpose.

- Evaluating test validity is not a static, one-time event; it is a continuous process.

According to Gay, (1996), if two variables are highly related, scores on one variable can be used predict scores on the other variable. High school grades, for example, can be used to predict college grades. The variable upon which the prediction is made is referred to as the predictor, and the variable predicted is referred to as the criterion. L.R gay, (1996) further explained that Prediction studies are conducted to test theoretical hypothesis concerning variables believed to be predictor of criterion, and to determine the predictive validity of individual measuring instruments. The result of prediction studies are used, for example, to predict an individual's likely level of success un a specific course, such as first year algebra, to predict an individual's likely to succeed in college or in college or in a vocational training program, and predict in which area of study an individual is most likely to be successful. Thus the results of the prediction studies are used by a number of groups beside researchers, such as counselors and admissions personnel.

2.3.2. Types of validity of tests

Test validity incorporates a number of different validity types. According to American Psychological Associations (APA) recommendation (cited in Ebel, 1979) there are two broad categories of validity, namely, Primary or Direct validity and secondary or derived validity. According to Ebel (1979), the first category includes, content validity, curricular validity, face validity, intrinsic validity and validity by definition. When we come to the Derived category, it includes Empirical validity,

factorial validity, construct validity, concurrent validity and predictive validity. Some of the above listed types of validity are:-

Content Validity

Has to do with how adequately the content of a test samples the knowledge, skill, or behaviors that the test is intended to measure. Content validity establishes how well a test compares to the real world. For example, a school test of ability should reflect what is actually taught in the classroom. shuttleworth, Martyn, (2009)

Construct Validity

Construct validity is a measure of how well a test measures up to its claims. A test designed to measure depression must only measure that particular construct, not closely related ideals such as anxiety or stress. shuttleworth, Martyn, (2009)

Face validity

Describes how well a measurement instrument appears to measure what it was designed to measure. For example, a test of mathematical ability would have face validity if it contained math problems.

Criterion Validity

Reflects how a test scores can be used to infer an individual's value on some criterion measure Kenneth.S and Bruce.B, (2005).

- Concurrent validity if the score of your test and the criterion are collected at about the same time.
- Predictive validity is a measure of how well a test predicts abilities, by comparing the scores on your test with the value of criterion measure observed at later time. A high correlation between these indicates good predictive validity. Predictive validity indicates the ability of a test to predict some future performance.

2.3.3. Methods of Expressing Criterion-related Validity

As it is mentioned above, criterion related validity can be classified as concurrent and predictive validity depending on the time of data collection. in both cases we can use the same technique to express validity.

Evidences for criterion-related validity mainly consist of a demonstration of a statistically significant relationship between the predictor and the out-come measure (cronbach, 1971). Predictor refers to any instrument used for decision making such as, selection, admission, counseling, placement and promotion. Predictor may be standardize or non-standardized tests of achievement, aptitude, personality, etc. as proposed by many measurement specialists, predictive validity study involves the following steps.

⇨ Obtaining appropriate samples. That is, the sample subject should represent the population under investigation.

- ⇨ Collecting data on the predictor instrument for the sample subjects. in this case, all the procedures should be the same for all subjects and care should be taken not to have recording error.
- ⇨ Assignment of subjects to treatment and waiting for the necessary weeks, months or years.
- ⇨ Collecting the criterion data for the same sample subjects. In this case, the criterion measure should be relevant, reasonably reliable.
- ⇨ Computing the correlation between predictor and criterion scores. the Pearson moment of correlation coefficient is the most often used method for reporting validity coefficient.
- ⇨ Thus, the last step should be checking for significance. There are factors determining statistical powers such as sample size, range restriction, criterion reliability and size of predictor-criterion relationship, and combination of these variables.

In modern prediction studies, regression analysis is used to gather further evidences other than correlation coefficients. Traditionally the correlation coefficient is considered as predictive value of a predictor variable. However, this may hold true in the case of bivariate analysis. That is, when one dependent and one independent variables are used. In the case of multivariate analysis, the multiple correlation coefficients may not directly indicate the predictive power of each predictor variable because of overlapping effect. (Hinkle, D. Wiersma, W. and Juss, S. 1994)

For instance, predictors that are actually the same measures under different names may cause overlapping effect. This is because; almost all the variance in one predictor variable can be accounted for by a set of other predictor variables. Therefore, multiple regression helps to identify the true variable which contributes significantly for the criterion variable.

Prediction and Decision Making

In essence there are three explicit functions of grades: to provide information about students' knowledge and skills, to increase their motivation to learn, and to be used as a tool for selection to the next level in the educational system. Grades are summative assessments of students' knowledge and since the grades are used for selection they are high stakes for students in Sweden. It is then of great importance that they are fair, comparable over schools and over time and that they can rank students for selection purposes (Gustafsson, 2006). One of the primary functions of grades is that they should represent a comprehensive assessment of the extent to which students have acquired the knowledge and skills set out in the syllabus and curriculum

The predictive validity of grades (results) is a research area which has interested numerous researchers. Quite a lot of studies have indicated that grades from the previous educational level are the most valid instruments for selection to further education.

For example, the Ethiopian school leaving certificate examination has been used by different people and organization for different purposes. Employers most

frequently use results of the examination as one of their selection criteria for employment and training purposes while higher education institutions use it to select and admit students. (Hand book of ESLCE office, 1985)as cited in Meresa (1994)

Many studies have been conducted to examine whether the ESLCE GPA predicts students' performance in college, universities and other institutions. However, many of the results are not consistent. Tracy (1965) as cited in Mohamed, 2004. examined the validity of ESLCE in several faculties. He found a significant relation between the overall ESLCE GPA and first year cumulative GPA. But the correlation coefficient was lower for each subject grades of ESLCE and conclude that ESLCE GPA predicts moderately with differential prediction among college and faculties.

Meresa (1994) also conducted the predictive validity of Ethiopian electric power corporation Admission criterion and he conclude that the admission criteria used by Ethiopian electric power corporation predicts the successful job performers on the job.

Similarly Mohammed (2004) took the selection criteria used to recruit teachers to be participated in kiremt program at Awassa university to see the predictive validity of these criteria. Accordingly Mohammed found that ESLCE/TTI GPA as the best predictor among the component of the selection criteria used for participants of kiremt program.

Thacker and William (1974), also reviewed a number of studies that focused on the importance of GRE scales as valid predictor of graduate GPA. They stated

that validity indices obtained were either low or non-significant. They also suggested that wide use of GRE as selection device needs further predictive studies in the area since none of the result is conclusive.

The consequences of undertaking predictive validity study of assessment results lies on building the confidence of stakeholders of the test, i.e. the society, the employer and as well the assessment center. This Study will explore predictive validity of competence test administered by center of competence (COC), by this; all the consumers of the study will develop their confidence on the certification of the assessment center. So the predictive validity studies play an important role in doing this.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Research design

The main purpose of this study was to investigate the predictive validity of the test administered by center of occupational assessment and certification, as seen in the performance of the trainees. In undertaking this study, Quantitative research methodology, correlational research design is employed. The reason for selection of this design was there had no control of the independent variable because its manifestation has already occurred and also it is the best method to see to the extent and kind of relationship exists between the independent and dependent variables.

3.2. Sources of Data

The data and information used for this study were collected from both primary and secondary sources. The main source of the data in this study was the personal file for each subject. In the study individuals Supervisory rating forms are collected from different organizations, Competence test Knowledge result, Competence test Skills and attitude results were collected from registrar office of COC and relevant books, reports, policies, strategies, Assessment and certification manual of MOE, Assessment and certification center guidelines were secondary sources. Primary data were obtained through questionnaire (appraisal form) from the immediate supervisors and co-workers of the COC candidates.

3.3. Samples and sampling Technique

Subjects

Subjects of this study were graduate students of technical and vocational education training who successfully passed the test administered by center of competency and got certified and those who sat for the test and failed the assessment, who are employed in different organizations in Addis Ababa region from the year 2000 to 2002 E.C and the employer organization supervisors and co-workers of these graduated students that they are working for.

Samples and sampling technique

The subjects for this study were selected from a total population of 5736 competent or Centre of competency certified candidates. There are 11 sectors in technical and vocational education and training (TVET) in which occupational competency tests are provided. These sectors are Business, information and communication technology, automotive, electricity/electronics, construction, manufacturing, culture, Health, leather, hotel and tourism and textile and garment. From this by using Purposive sampling 27 % of sectors which is around three (3) sectors were selected. The reason for using purposive sampling were 55% of the competent candidates were found in these sampled sectors and also there could be a wide opportunity of getting graduates from these sectors in the world of work. The selected sectors were construction, Business and health sectors. Availability sampling technique was also used to select the participants. The reason for

employing availability sampling technique was there were no formal records or ways of getting the participants from one source.

Table 2: Population and participants of the study

Sector	Competent candidates	Not yet competent candidates	Competent participants	Not yet competent participants
Business	1050	2948	50	23
Construction	1228	1021	50	27
Health	896	3221	70	0
Total	3174	7190	170	50

Source: registrar of COC (2003)

3.4. Variables

Independent (Predictor) Variable - The scores of the participants in knowledge competence test and in skill and attitude competence test are used as predictor variables.

Dependent (Criterion) variable - Two criterions Variable were used in the study. Criterion 1 (Supervisory ratings of the candidates of COC) and Criterion 2 (the appraisal questionnaire filled by supervisors and co-workers).

3.5. Instrumentation

The information and data collected for the study from both primary and secondary data sources. So that questionnaire was used to obtained primary information and document analysis was used to obtain secondary information.

Document analysis - the main information for this study was collected from the supervisory rating records, knowledge competence test score and skill competence test scores. All the supervisory rating forms included in this study are the evaluation after the period of certification of the competence test. These rating forms are collected from the organizations that these candidates of COC are employed.

Questionnaire - the instruments that were used to collect firsthand information was questionnaire. It serves as a triangulation tool for the data gathered from the supervisory rating forms. The questionnaire that is used in this study is adopted from different organization's appraisal forms (Princeton University, info@halogensoftware.com, and Alan Chapman 2003). Intended to measures Knowledge, skill Personal attribute and behavior of employees. The employer or the supervisor of these graduates or co-workers were asked to rate the performance of their employees in an appraisal form (Questionnaire).

3.6. Procedure of data collection

As per the sampled sectors of the TVET, 10 government, 3 Non-government and 1 private were asked if there were information about whether their employees took occupational assessment and certification test (CoC) and the status of their result, and the organization that these data are available were asked to provide the supervisory rating forms of CoC candidates employees with their name and put the code of the questionnaire on the above of the appraisal form. The questionnaire was filled by the immediate supervisors or managers' organization for the same person according to the code given on the questionnaire and supervisory ratings. This has

been done till the researcher got possible number of samples that are included in his study.

3.7. Pilot study

The researcher undertakes pilot study in one selected sectors of TVET as to evaluate whether the questionnaire were appropriate to generate adequate information and to make the necessary modifications. As per the result of pilot study, the cronbach alpha shows 0.85 for knowledge, 0.87 for skill, 0.71 for personal attribute and 0.79 for behavior. This means that all of the question items found to be reliable to gather the data. The reliability analysis of the questionnaire is attached in the Appendix 2.

3.8. Data analysis Method

In this study the researcher used some aspects of descriptive statistics and inferential statistics technique to provide validity evidence for the entrance competence testing provided by center of competence. To see the profile of the graduate; frequency, percentage and to examine the average performance of all graduate mean was used. t-test is also used to see if there is significant difference between the competent and not yet competent candidates performance. Correlation were used to demonstrate the relationship between the predictor and the criterion variables. One way-ANOVA is used to see if the test has the same implication in the selected sectors. t-test and Chi square is also used to see difference and association between on job performance and COC scores of candidates. Multiple regression is used to see which variable is the best predictor from the profile(background

information) of the candidates. To analyze the data computer software called SPSS was used.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Profile/Background information's of Study population

The study populations of this research are candidates of competence test, provided by center of competence (COC), who are currently employed in different organization. The center of competence has the objective of guarantying occupational competences of graduates of technical and vocational education and training (TVET) by providing occupational assessment and certification.

The purpose of this research is therefore to examine and explore whether this test predicts successful job performers or the extent to which the test predicts on job performances. As the study revealed that 220 supervisory rating forms were collected from different organization and 220 questionnaires were filled by supervisors and co-workers for the same persons that the supervisory forms was collected. All of the participants properly filled in the questionnaire and duly returned the paper.

Below the description of the population is shown in the Table 3

Table 3: Profiles/Background information of the study participants (N=220)

		N	%
Type of organization	Government	165	75
	Non-Government	49	22.3
	Private	6	2.7
Sex	Male	101	45.9
	Female	119	54.1
Sector	Business	73	32.2
	Construction	77	35
	Health	70	31.8
Status of COC test	Competent	170	77.3
	Not yet competent	50	22.7
Levels of Academic achievement	Certificate	15	6.8
	Diploma	176	80
	Degree	29	13.2
Duration of employment	One year	95	43.2
	Two Year	68	30.9
	>two year	57	25.9

As shown in Table 3, 101 (45.9%) of the participants were male and 119 (54.1%) were females. And also the majority 165 (75%) of the participants were government employees, 49 (22.3%) of them were working in Non-governmental organizations and the rest 6 (2.7%) in private organizations. The status of the participants in the test score were both competent 170 (77.3%) and Not Yet competent 50 (22.7%). This participants were from different sectors of Technical and vocational education and training, 73 (32.2%) of the participants were from business sector, 77 (35%) of them were from Construction and 70 (31.8%) from Health sectors. In each sector the participant has different level of academic achievement, 15 (6.8%) of them were certificate graduate, the majority, 176 (80%) were diploma holders and the rest 29 (13.2%) of the participants were Degree holders. Similarly, 95 (43.2%) of the

participants has one years of experience, 68 (30.9%) two years and 57 (25.9%) of them has experience greater than two years. This shows most of the participants of the study appears to be good participants because most of them are not well experienced so that experience could not be a factor that affects the validation of the test.

4.2 Results of the Knowledge analysis of the participants

One of the most important things to accomplish a job according to the intended specification is knowledge. An employee needs to have the expected level of knowledge in his/her area of specialization. If this so, it has a lot of uses for the employer, the employee as well as for the country. Table 4 below shows that the mean and standard deviation of knowledge scores of the participants as evaluated by certain components of knowledge

Table 4: The mean and standard deviation results of Knowledge analysis

Question items	Competent		Not yet competent	
	Mean	SD	Mean	SD
How well does the employee understand all phases of the job as defined by the performance standards set for the position	3.76	0.85	2.88	0.96
In depth knowledge of all requirements of the job	3.81	0.85	2.70	1.26
Knowledge of technology and expertise required for a job	3.84	0.87	2.82	0.98
Knowledge of a particular area of specialty	3.86	0.71	3.34	1.08
Knowledge of policies and procedures of a job	3.72	0.97	2.72	1.19
Theoretical knowledge of the profession	3.82	0.96	3.22	0.97
The degree to which the employee complies with or over sees the compliance with organization safety rules.	3.64	0.94	3.20	0.98
Total mean of Knowledge	26.49	2.8	20.88	4.25
t- value	8.79			
P – value	0.000			

As shown in Table 4, the supervisors and co-workers of these candidates were rated all the question item above average of the five point likert scale. When we see the mean and standard deviation of the competent participants they are rated approximately around, mean=4 with standard deviation = 1, which is at exceeds expectation level and this shows satisfaction of the employers or supervisors on the knowledge component of their job. But when we see the not yet competent candidates or employees they have got approximately mean =3 and standard deviation = 1, still this shows that these employees also satisfy at least the minimum requirements or meets expectation of their employer in the knowledge components

of competence. The result reveals that, substantial amount of difference exists between the "competent" and "not yet competent" candidates.

As observed in Table 4, the independent t-test result also revealed that there is statistically significant knowledge difference between competent (M = 26.49, SD = 2.8) and Not yet competent (M= 20.88, SD = 4.25) Candidates at ($t = 8.79$, $P < 0.001$) This implies that the competent candidates have better knowledge than that of the not yet competent candidates.

4.3. The result of the skill analysis of the participants

Factors like quality of work, work output, customer service, to deal with supervisors and co-workers and so on.., could be indicators to measure the quality of skill that one possess. Thus, in order to measure the skill of the COC candidates eleven item were given in five level likert scales. As indicated in the Table 5 for the "Competent" participants all of the question items are rated above meet expectation (approximately mean = 4). This shows, that the competent candidates consistently meets and often exceeds all relevant skill standards set for their position. For most of the question items the "not yet competent "Participant rated in the meet expectation level (mean = 3). This means the not yet competent candidates meets all relevant skill standards, seldom exceeds or falls short to produce desired results and objectives. But, two items that says "complete high quality of work according to specification" and "work is organized and presented professionally" showing mean of 2.42 with 0.86, standard deviation and 2.44 mean with 0.74 standard deviation respectively. This shows that in the above two respects the not yet competent

candidates fail to meet the expectation of their position and shows the employer dissatisfaction towards the quality of skill or work output that these individual possess and the way they present their works. Here, also, the result reveals the competent participants of the study have more skill than those of the non-competent participant.

Table 5: Mean and standard deviation of skill result

Question item	Competent		Not yet competent	
	Mean	SD	Mean	SD
Possess skill and knowledge to perform the job competently	3.86	0.93	3.36	0.98
Complete high quality of work according to specification	3.80	0.88	2.42	0.86
Work out put matches the expectation established	3.62	0.88	3.42	0.92
Work is organized and presented professionally	3.91	2.39	2.44	0.74
Employee complete all assignments	3.55	0.82	3.32	1.03
Employee consistently meets deadline	3.72	0.81	3.52	1.03
Treats all customers with respect.	3.88	2.48	3.52	0.97
Responds to customer needs within agreed time frames	3.75	0.94	3.62	1.04
Maintains a safe and healthy workplace.	3.65	0.85	3.56	1.10
Ability to take necessary and appropriate action independently	3.85	0.78	3.44	0.97
Ability to consistently accomplish allocated jobs without supervisors	3.68	0.84	3.44	1.03
Total mean for skill	41.34	4.8	38.12	6.42
t-value	T – 3.29			
p-value	0.002			

As can be seen from Table 5, the result of independent t-test implies that there exists statistically significant mean difference on the skill between competent (M = 41.34, SD = 4.8) and Not yet competent (M= 38.12, SD = 6.42) Candidates at ($t = 15.71$, $P < 0.001$). From this we can see that the competent candidates acquired better skill than the not yet competent candidates. So that they do their job with the specification of their employers with the expected standard of quality and quantity.

4.4. Results of Personal Attribute of the participants

Personal attribute is one aspects of competence an employee need to have. It is inherent characteristics which are brought to the job, representing the essential foundation upon which knowledge and skill can be developed (MOE, 2008). A work place is not only the place that an individual contribute for the company or organizations sake, it is also a place that an individual improve the knowledge and skill that he/she has and build his/her capacity in many ways. In order to let this thing happened, it needs the willingness of the individual to learn from others, accepting suggestions, comments and other things that are mentioned in Table 6 below. As shown in Table 6 for the said "competent" participants all the question items were rated to exceed expectation (Mean = 4) level and for the "not yet competent" ones in the meet expectation level (Mean = 3). This implies that both groups of participants have good personal attribute.

Table 6: Mean and Standard deviation of personal attribute result

Question Items	Competent		Not Yet competent	
	Mean	SD	Mean	SD
using appropriate and efficient methods of conveying the information	3.84	0.86	3.56	1.14
Organizes and expresses ideas and information clearly	3.76	0.84	3.48	1.07
Expresses alternative points of view in a non-threatening way. Knows when it is appropriate to compromise and when it is important to take a stand	3.67	0.86	3.38	1.19
Maintains high level of character and a professional attitude. Is able to conform and promote the company's standards of conduct	3.83	0.84	3.36	0.82
Consider the extent to which the employee is cooperative, considerate, and tactful in dealing with supervisors, subordinates, peers, and others.	3.79	0.77	3.26	1.08
Displays openness to learning and applying new skills.	3.69	0.90	3.54	1.09
Adapts to new situations in a positive manner.	3.80	0.83	3.50	1.18
Works well with others to achieve organization's goals.	3.92	0.86	3.40	1.10
Willingness to accept a variety of responsibilities.	3.79	0.86	3.58	1.08
Continually looks for ways to improve and promote quality. Applies feedback to improve performance.	3.80	0.85	3.40	1.09
Total mean for skill	34.13	2.76	31.06	6.79
t-value	3.12			
p-value	0.003			

As observed from Table 7, according to the result of the independent t-test, there is statistically significant mean difference between competent (M = 34.13, SD = 2.76) and Not yet competent (M= 31.06, SD = 6.79) Candidates personal attribute at (

$t = 15.71$, $P < 0.001$) This implies that the competent candidates show greater personal attribute than that of the not yet competent candidates.

4.5. Behavior results of the participants

Behavior is the observable demonstration of some competency, skill, knowledge and personal attributes. It is an essentially definitive expression of a competency in that it is a set of action that, presumably, can be observed, taught, learned, and measured. The competence related to behavior is depicted in Table 7 below

Table 7: Mean and standard deviation of the behavior result

Question Items	Competent		Not yet competent	
	Mean	SD	Mean	SD
Utilization of resources: The degree to which the individual has utilized funds staff or equipment economically and effectively.	3.73	0.94	3.12	1.13
Ability to arrive at conclusion promptly and to decide a definite course of action	3.84	0.89	4.06	1.12
steadiness under pressure	3.71	0.85	3.30	0.95
Initiating workable ideas, techniques, solutions; willingness to change/try new approaches.	4.00	0.85	3.28	1.14
How well does the individual come to grips with unpleasant issues and seek to solve them by constructive action at his or her own level?	3.88	0.82	3.44	0.86
how well the employee go above and beyond the call of duty in order to get a job done when he had to	3.81	0.87	3.54	1.09
How well the individual prioritize his/her task In a time when he/she had too many things to do	3.89	0.80	3.36	0.87
Total mean for skill	30.7	2.65	27.56	6.67
t-value	3.25			
p-value	0.002			

As of Table 7 implies the level of behavior for the competent and not yet competent candidates has slight difference. As of the above three components all of the question items of behavior for the said competent are rated approximately around mean = 4 with 1 standard deviation. Similar to the above three components of competence the question items for the not yet competent candidates also rated as slightly above mean = 3 and standard deviation = 1, except for the item that says "Ability to arrive at conclusion promptly and to decide a definite course of action"

which is rated 4.06 mean with 1.12 standard deviation. this implies that the not yet competent candidates has good decision making ability than those of the competent candidates.

As shown in Table 8, the result of the independent t-test revealed that there is statistically significant mean difference between competent (M=30.7 and SD=2.65) and Not yet competent (M=27.56 and SD=6.67) candidates behavior at ($t=3.25$, $p<0.001$). This implies that the competent candidates maintain the necessary behavior needed for the successful completion of the job.

As we can see from the presentation of the four components of competence the "Competent" candidates of COC exceeds the expectation that set for the position as a professional. This means they exceed the minimum expectation that the employer set for the position. The "Not yet Competent" candidates satisfy the needs of the customer by achieving the Meet Expectation level. They don't fail to satisfy the minimum requirement that the job requires. the result of the independent t-test also revealed the competent candidates of COC perform better in all components of competence. Generally, the presentation of the data revealed that there is clear performance difference among the competent and not yet competent candidates of competence test, administered by COC.

4.6. Results of correlation

The analysis below presents the bivariate correlation analysis of the predictive validity of the competence test administered by center of competence. Two criterion variables were used in the study. The first is the supervisory ratings scores of the organization that the participant candidates of COC are working, called in this study "Criterion 1" and appraisal questionnaire prepared by the researcher and filled by supervisors and co-workers of these candidates, and called in this study "Criterion 2". The Predictor variables entered in the analysis were the Knowledge test results of the competence test. The reason that the researcher only use the result achieved by the knowledge test is the rating for skill and attitude (personal attribute &behavior) is rated as "competent" and "not yet competent". It is not expressed in figures. According to the information obtained from the assessment center, there are minimum standards to evaluate the candidates in skill and attitude, so, if the candidates fail to satisfy one of the standard he/she is said to be not yet competent and vice versa.

The validity correlations represent the most crucial statistical relationship in this study. These correlations are essentially an indicator of how well the COC predicts the subsequent job performance of the participants. Job performance ratings of 220 participants appear in Table 8. Specifically Pearson r was used to compute the correlation of the Knowledge COC test results with the composite on job performance on each criterion instrument. .

Table 8: Correlation of the CoC knowledge score with the composite on job performance rating

Predictor variable	Job performance	
	Criterion 1 (Organizations supervisory rating)	Criterion 2 (Co-worker and supervisors)
Result of COC	0.64**	0.50**

**P<0.01

As observed from Table 8, the correlation coefficients among the criterions and the predictor variable were all significant at $\alpha = 0.01$. Among the correlation coefficients of criterions and predictor variable, the highest was observed between result of Competence test score and Criterion 1 (supervisory ratings of the organization) ($r = 0.64$, $p < 0.01$) followed by Criterion 2(questionnaire filled by co-workers and supervisors) which is ($r = 0.50$, $p < 0.01$). Both the correlation coefficient of the criterions shows that there is moderate relationship with predictor.

4.7. The result of One way ANOVA across different sector

Center of competence, provides competence test for about 11 sectors of TVET, but for this study threes sectors was sampled. So that, to check whether the results of the competence test can measure performances among these selected sectors helps to predict the validity of the test in the selected sectors. Table 11 shows that the result of ANOVA across the selected sectors of TVET.

Table 9: Summary of one way ANOVA of different sectors of TVET

Sources of variation		Sum of squares	DF	Mean square	F
Criterion 1	Between Groups	1115.09	2	557.54	18.69
	within Groups	6473.06	217	29.83	
	Total	7588.15	219		
Criterion 2	Between Groups	486.63	2	243.31	10.02
	within Groups	5265.61	217	24.26	
	Total	5752.24	219		

As observed from Table 9, with criterion 1 statistically significant mean difference in participants on job performance were found: $F(2, 217) = 18.69$, $P > 0.05$ and in Criterion 2, statistically significant difference were found: $F(2, 217) = 10.02$. In both criterions the result of ANOVA revealed that there exists statistically significant mean difference in the sampled three sectors of TVET. This implies the competence test of Center of Competence (COC) used to predicts the on job performances of the candidates. This helps us to infer the center of competence predicts the academic success and job performance in all sectors of TVET.

4.8. Performance Differences and relationship between competent and not yet competent candidates

According to center of competence the name competent and not yet competent is the indication of the knowledge, skill, personal attribute and behavior that an individual has. It also helps us to merely identify individuals who possess the necessary competence of a profession.

Table 10: On job Performance difference in the mean of Competent and Not yet competent candidates of COC.

Variable	Status of COC	Number	Mean	SD	t-value `
Criterion 1 (Supervisory rating)	Competent	170	38.13	4.01	15.71
	Not yet competent	50	29.94	5.52	
Criterion 2 (Appraisal questionnaire)	Competent	170	34.11	2.12	6.38
	Not yet competent	50	26.97	7.84	

As observed from Table 10, according to Criterion 1,the independent t-test result revealed that there is statistically significant difference between competent (M = 38.13, SD = 4.0) and Not yet competent (M= 24.95, SD = 5.53) Candidates performance at (t = 15.71, P < 0.001) and According to Criterion 2 also, there exists statistically significance difference between competent (M= 34.11, SD = 2.12) and Not yet competent (M= 26.97, SD = 7.84) at (t = 6.38, p < 0.001). The results of independent t-test for both Criterions revealed that there is statistically significant difference in the mean of competent and not yet competent candidates. This implies that the competent candidates had greater performance than that of the not yet competent candidates.

Relationship between on job performance and COC score of the competent and not yet competent candidates.

The result of chi square showed that 111 participants are rated above 4 in a of the five point Likert scale. This shows that most of the competent candidates have performance which exceeds the expectation of their employers. and 59 of them are below 4 which shows average performance. All of the not yet competent candidates

were rated below 4 in a five point Likert scale. The result of chi square showed that there is clear performance difference between the competent and not yet competent candidates of COC.

Table 11; Contingence table of the chi square for the competent and not yet competent candidates

		Status of COC		Total	χ^2 value	p-value
		Competent	Not yet competent			
Supervisory Rating	Above 4	111	0	111	65.89	0.000
	Below 4	59	50	109		
Total		170	50	220		

As show in Table 11, the result of the chi square for contingency table shows there is strong relationship between the COC score of candidates and on job performance or supervisors rating on students at the work place ($\chi^2_{(65.89,\ 1)}$= 65.89, $p<0.001$, two tailed).

4.9. Predictor Variables from Background/Profiles of the participants

Table 12: corruption matrix among organizations supervisory ratings and profile variables

Criterion and Demographic Predictor Variables	1	2	3	4	5	6
Criterion 1 Criterion 2	1.00	0.20 (0.27)	-0.11 (0.05)	0.12 (0.06)	0.78** (-0.58)	-0.25** (-0.17)
Sector (2)		1.00	0.00	0.01	-0.30	0.02
Sex (3)			1.00	-0.19	0.13	-0.12
Level of Academic achievement (4)				1.00	-0.10	0.03
Status of COC(competent or not yet competent) (5)					1.00	0.24
Work Experience (6)						1.00

**P < 0.05

As shown in Table 12, the correlation coefficients among the criterions and the profile predictor variables were no significant for the other profiles predictors except status of COC which shows strong positive relationship. The correlation coefficient for status of CoC Reveals, when the Score on COC increase performance increase.

Up next, because it would be fine to prioritize which variable are best predictor, the second best predictor, and the third and like, stepwise multiple regression method was chosen to analyze the relationship between the criterion and demographic predictor variables, this will be done until all the variables that significantly predict the criterion variables are completed.

Table 13: Analysis of variance (ANOVA) for some predictor Profiles variables

Variable Entered		Source of Variance	Sum of Squares	Df	Mean Square	F
Status of COC	Criterion 1 (Organization Supervisory rating)	Regression	6725.01	1	6725.01	**347.87****
		Residual	4214.28	218	19.33	
		Total	10939.29	219		
	Criterion 2 (Co-workers and supervisors form)	Regression	1970.92	1	1970.92	**113.62****
		Residual	3781.31	218	17.34	
		Total	5752.24	219		

**P < 0.05

As can be depicted in Table 13, the other demographic predictor variables included in the study were excluded by the model, this implies sex, sector of education, level of academic achievement and Work experience found not to be significantly contributing to the prediction of the job performance of center of competence (COC) candidates. While status of COC (being competent and not yet competent) of the student were found to be the only significant predictor of candidates performance on their job as evaluated by both Criterion 1 (the organizations supervisory rating)($F_{1, 218} = 347.87$, $p < 0.01$) and (Criterion 2) the questionnaire filled by supervisors and co-workers ($F_{1, 218} = 113.62$, $p < 0.01$). In both cases at $\alpha=0.01$ level of significance, there exists enough evidence to conclude that the slop of the population is not zero and, hence, status of COC can be used as useful predictor of job performance.

Table 14: Regression coefficients of significant Demographic predictor variables

Demographic predictor Variables	B	Std. Error	B	T
(Constant)	51.33	0.91		
Candidates Status of COC	13.19	0.70	0.78	18.65**

**P < 0.01

As shown in Table 14, the regression model excluded all other predictor variables except status of the participant as they were found to be not significant contributors to the prediction of the on job performances. The prediction equation for this model was $\overline{Y}$ = 51.33 + -51.33 X_1 where X1 is the status of COC of the students. The coefficient of regression for this model was significant (t = -18.65, p < 0.01).

Here also, as we have seen in the above analysis the status of COC (being competent or not yet competent) made clear difference in performance of candidate's. This implies that one can use the certification of COC as a selection criterion for recruiting successful job performers.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of findings

The main objective of this paper was to evaluate the predictive validity of competence test, administered by Center of Competence, as observed by the candidate's performance on work places. It is directed to find evidence regarding the independent variable (i.e. CoC result) with respect to the dependent variable (i.e. on job performance). In order to conduct this study correlational research design was used. 220, of which 170 competent and 50 not yet competent candidates of COC were participated in the study. To gather the necessary data two criterions were used. The first criterion was the supervisory rating forms of different organizations that these successful candidates of COC were working. The second criterion was appraisal questionnaire prepared by the researcher and filled by supervisors and co-worker. The data collected was analyzed through SPSS.

The summery of the findings of this study starts by describing the profiles of the participants of the study and proceed to address the three basic research questions.

5.1.1. Profiles/Background information's of the study participants

The participants of this study were 170 "Competent" and 50 "Not yet Competent" candidates of COC, Competence test. These candidates of COC were hired in different organization, 165 of them are employed in government, 49 of them are non-government and 6 of them are employed in private organization. From this participants of COC 101 of them were Male and 119 of them were Female. These participants are taken from three sectors of TVET. These sectors are, Business, consists of 73 participants, construction 77 participants and Health consists of 70 participants. This participant has different level of academic achievement. 15 of them are certificate holders, 176 of them are Diploma holders and the rest 29 of them are Degree holders. From this 95 of them have a one year work experience, 68 of them has 2 years of work experience and 57 of them has greater than two years of experience.

5.1.2. Data pertaining to major research questions

A/ Are competence test, center of competence (COC), provides valid predictors of job performance and training success in Addis Ababa TVET samples?

The first research question aimed to check that the test has served its purpose. It analyzed the result of the questionnaire to see the level of knowledge, skill, personal attribute and behavior that the competent and not yet competent candidates of COC lays. It also seeks to see the relationship between the independent variable (COC score) and Criterion 1 (supervisory rating result of organization) and Criterion 2 (appraisal questionnaire) as Dependent variable.

The result of the questionnaire reveals that the "competent" candidates of the test have the performance which exceed all the relevant performance standards needed for their position. They have a mean and standard deviation of Mean=4 and Standard Deviation=1, for almost all components of competence, (i.e. Knowledge, Skill, Personal attribute and Behavior). The "Not yet Competent" candidates of the test has Mean=3 with Standard deviation of 1, almost in all components of competence. This shows that there is a performance difference between the competent and not yet competent candidates. Even if, the not yet competent candidates not fail to satisfy the minimum requirement performance for the job, the competent candidates shows a better performance. The result of an independent t-test also revealed that there is statistically significant performance difference between the competent and not yet competent candidates of COC in the four aspects of competence (Knowledge, Skill, Personal attribute and Behavior).

The correlation result of the independent variable with the dependent variables (Criterion 1 and Criterion 2) shows that there is Moderate relationship between the predictor and the criterion variables (i.e. 0.64 for Criterion 1 and 0.5 for criterion 2). We can conclude that the competence test, provided by COC, as predictor of job performance of the respective candidates.

B/ Does the predictive validity of Competence test, provided by COC, can have the same implication across the sampled sectors of TVET?

The sectors included in the study were business, construction and Health. One way ANOVA were used to see whether significant difference exist between the three

sectors. The result of one way ANOVA show that the test predicts the on job performance in the three sectors so that, it can be generalized for all the sectors.

C/ Is there significant performance difference and relationship between competent and not yet competent candidates of COC?

Independent t-test were used to see whether there exists significance performance difference between competent and not yet competent candidates and the result reveals that there exists significance difference. The competent candidates have a better performance than that of the not yet competent. The result of chi square also shows that there is strong relationship between on job performances and COC scores of the candidates.

From the profile of the participant's which Predictor variable contribute more for the prediction

Levels of qualification, Status of COC, Work experience, Sex, sector and Level of academic achievement are from the profile predictor variables used in this study. Status of COC shows strong positive relationship with the criterion while the other four takes weak relationship with correlation coefficient. The result of the simple linear regression shows status of COC strongly predicts performances than the other four Profile predictor. This also supports the findings from the questionnaire and the independent t-test. So that it give us strength to conclude the test administered by the center of competence predicts the training success and on job performances of the respective candidates.

5.2. Conclusion

The following conclusions are made from the findings of the study

1. The "Competent" candidates have performance which exceeds the expectation of their employers with respect to knowledge, skill, personal attribute and behavior and those of the "Not yet competent" candidates have performances meets the expectation of their employers.
2. There is significant difference in Knowledge, skill, personal attribute and behavior between the competent and not yet competent candidates of COC.
3. The result of COC moderately predicts academic success and on job performance of the candidates.
4. The result of one way ANOVA shows that the competence test predicts job performance in business, construction and health sectors. So that the result of COC can be valid across the sampled sectors of TVET.
5. The result of independent t-test shows that competent candidates have good performance than the not yet competent and also the result of chi square shows that there exists strong relationship between on job performances and COC scores. Also Status of COC (being Competent or Not yet competent) was the best predictor of job performance from the background information predictor variables.

5.3. Recommendations

In respect with the findings of the research, the researcher recommends some points for TVET institutions, COC offices and Employers.

- COC predicts academic success and on job performances of the candidates so that every employer can use the result of COC as a criteria to identify employees who could work competently.
- Center of competence ought to conduct research in different validity aspects of their test. If the not yet competent candidates of the competence test have the performance that meets the expectation established, there should be some problem in the test, so they have to seriously conduct research on the test.
- Competence test, administered by center of competence is a recently introduced phenomenon. For this reason there are a lot of areas which needs to be investigated. So that it is better if researches give due attention.

References

Ayele, A. (2010). *Influence of Individula and Contextual Factors on Improving the Proffessional Development of TVET Teachers in Ethiopia.* Addis Ababa, Ethiopia.

Arnold, R. and Patzold, H. . (2009). *Further Education and Training Research. In: F. Rauner & R. Maclean. (Eds.). 2009. Hand Book of Technical and Vocational Education and Training Research. .* International Liberary of Technical and Vocational Educationa and Training. .

Chapman, Alen. (2003). *Perforamnce appraisal form template.*Retrived [November 2, 2010] from performance appraisal form: http://www.businessballs.com/ appraisal-template.html

Cronbach, L. (1971). *Test Validation in Educational Measurment 2nd edition .* Washington, D.C: American Council in Education .

Delamare-LE Deist, Winerton, J. (2005). What is Competence? *Human Resource Development International* , Vol 8(1), 27-46.

Ebel, R. L. (1979). *Essentials of Educational Measurment 3rd edition .* Englewood Cliffs : N.J, Prentice-Hall, Inc. .

Gay, L. (1996). *Educational research: Competence for Analysis and Application 5th edition.* Upper Side River, New Jearsy : Prentice-Hall, Inc. A Simon & Schuster Company.

Glasersfeld, E. V. (1995). Cognition, Construcion of Knowledge and Teaching. *Synthesis*, 80, 121-140.

Gonczi, Andrew. & Athanasou, James A. & Hager, Paul. & Australia. Dept. of Employment, Education and Trainig. & Australia. (1993). *The Development of Competence - based assessmetn strategies for the professions.* Australia: Australian Govt. Pub. Service, Canberra.

Grollman. P and Rauner. F. (2007). *International Perspective on Teachers and Lecturers in Technical and Vocational Education.* (Dirdrecht, Springer)

Gustafson, C.R. and Michael, J. (1976). The Prediction of Grade Point Average in the Graduate program in a School of Education of a large California State University. *Educational and Psychological Measurment* , Vol. 36, No. 4 PP 59 - 64.

Hager, P. (2004). The Competence Affair or Why Vocational Education and Training Urgentely Needs a New Understanding of Learning . *Journal of Vocational Education and Trainig* , 56(3), 409-433.

Hinkel, D.E., Wiersma, W., and Juss, S.G. . (1994). *Basic Behavioural Statistics.* Boston: Houghton : Mifflin Company .

Keneth S. Boardens and Bruce B.Abbott. (2005). *Research Designs and Methods 6th edition.* Americas, New York, NY 10020: Quebcor World Fairfield Inc.

Meresa Abrha, (1994). *predictive Validity of The Admission Criteria used by the Ethiopian Electric light and power Authority Training Institute*, AAU, unpublished MA thesis

Mirabeile, R. (1997). Every Thing You Wanted to Know about Competnce Modelling . *Training and Development* , August Issue, 73-77.

MOE, (2003). *National Center for Technical and Vocational Education and Trainign Development, Quality Assurance in TVET.* Addis Ababa: Unpublished.

MOE, Ministry of Education . (2006). *Ethiopian TVET qualification Framework.* Addis Ababa: Unpublished.

MOE, Ministry of Education . (2008a). *Ethiopian National TVET Strategy Framework.* Addis Ababa : Unpublished.

MOE, Minstry of Education . (2008b). *Users Manual in Developing/Formulating Assessmet Item/Tool.* Addis Ababa: Unpublished.

MOE, Minstry of Education . (2009a). *Assessment Center Operation Manual* . Addis Ababa: Unpublished.

MOE, Minstry of Education. (2009b). *Assosors Accredation Manual, .* Addis Ababa: Unpblished .

MOE, Minstry of Education. (2009c). *Assessmet and Certefication Guidline, .* Addis Ababa: MOE.

Mohamed Alewi, (2004). *The Predictive Validity of Selection Criteria used for teachers Participation in Kiremt Program at Awassa University College of Teachers Education.* AAU unpublished MA thesis

Mulder, H. (2007). Towards a job competency. *Human resource development international* , vol. 10, no 2, 137-152.

P. Kumarl, Shiny. (2007). *Benefits of Using Competence Model for different Company, Managers and Employers*. Human Resource, 31-44

Parry, S. B. (1996). The Quest for Competences: Competency Studies can help you to make HR Decision, but the results are only as good as the study. . *Training* , 33, 48-56.

Pedhazur, E. (1982). *Multiple Regression in Behavioural Research. Explanation and Prediction (2nd ed.).* New York: Holt, Rinehort and Winston By CBS College Publishings.

Princton University, Human Resource. (2010). *Staff performance appraisal Form B* .

Romanian Ministry of Education (MOE), (2008). Research and Youth Center for Technical and Vocational Education and Training Development. *Quality Assurance in Romanian Technical and Vocational Education and Training.*

Schemidt, Frank L. and Hunter, John E. (1980). The Future of Criterion-Related Validity. *Personnel Psychology*, 33, 41-60.

Shuttleworh, Martyn. (2009). Test Validity. Retrived [October 13, 2010] from Experimental Resource: http//www.exprimetn-resource.com/test-validity.html

Spencer, L.M., & Spencer, S.M., . (1993). *Competence at work: Models for Superior Performance. .* New York : John Wiley .

Stephen G. Sireci. (2007). *On validity Theory Validization .* Huston .

Stoof, A., Martens, R., Van Merrienboer, J., Bastiaens, T. . (2002). The Boundary Approach of Competence: A Constructivist Aid for Understanding and Using the Concept of Competnce.. . *Human Resource Development Review*, 1(3), 345-365.

Straka, G. A. (2004). *Measurment and Evaluation of Competence, in 3rd European Research Report: Vocational Education and Training .* Thessaloniki: CEDEFOP.

Thacker. A.J. and Williams. R.E. (1974). The relationship of GRE to GPA and Success in Graduate school. *Educational and Psychological Measurment.* vol. 34. no 4 pp. 939-994

UNESCO. (2001). *Revised Recommendation concerning Technical and Vocational Education and Training.* (Paris, UNESCO).

UNESCO. (2002). *Technical and Vocational Education and Trainig for 21st Century, UNESCO and ILO recommendation* . United Nation Educational, Scinitific and Cultural Organization and International LabourOrganization .

Woodruffe, C. (1991, september). Competent by any other Name;. *Personnel Managment* , Vol. 23, no 9.

APPENDIXES

Appendix 1

Addis Ababa University

Institute of Educational Research and Evaluation

Questioners to be filled by supervisors

Dear participants Center of Competence (COC) provides occupational assessment and certification since 2000 E.C. There for, the purpose of this questionnaire is to collect data pertinent to depict the predictive validity of the test that is provided by the assessment center.

The information that you will provide will determine the quality of the study. So you are kindly requested to fill the questionnaire genuinely and honestly.

The confidentiality of your response will be strictly held, as the data will be used only for the academic purpose. The questionnaire has two components. The first is about general background of the appraise whereas the second about the performance of the appraisee as evaluated by the performance factors.

Note that:

- You need to respond all the items
- Put a tick (√) mark inside the box provided.

YosefTeshale
Institute of Educational Research and Evaluation
Addis Ababa University

I. EmployeesInformation

Name of Organization _____

Name of the appraisee _____

Sector _____

Sex _____

Apraisee field of qualification _____

Apraisee level of Academic achievement _____

Duration of Employment _____

Current position _____

II. Performance appraisal

Definition of Ratings

EXCEPTIONAL (5): Consistently exceeds all relevant performance standards. Provides leadership, fosters teamwork, is highly productive, innovative, responsive and generates top quality work.

EXCEEDS EXPECTATIONS (4): Consistently meets and often exceeds all relevant performance standards. Shows initiative and versatility, works collaboratively, has strong technical & interpersonal skills or has achieved significant improvement in these areas.

MEETS EXPECTATIONS (3): Meets all relevant performance standards. Seldom exceeds or falls short of desired results or objectives. Lacks appropriate level of skills or is inexperienced/still learning the scope of the job.

BELOW EXPECTATIONS (2): Sometimes meets the performance standards. Seldom exceeds and often falls short of desired results. Performance has declined significantly, or employee has not sustained adequate improvement, as required since the last performance review or performance improvement plan.

NEEDS IMPROVEMENT (1): Consistently falls short of performance standards.

No	Performance factor	Ratings				
		Exceptional	Exceed Expectation	Meets expectation	Needs improvement	Below expectation
1.	How well does the employee understand all phases of the job as defined by the performance standards set for the position					
2	In depth knowledge of all requirements of the job					
3	Knowledge of technology and expertise required for a job					
4	Knowledge of a particular area of specialty					
5	Knowledge of policies and procedures of a job					
6	Theoretical knowledge of the profession					
7	The degree to which the employee complies with or over sees the compliance with organization safety rules.					
8	Possess skill and knowledge to perform the job competently					
9	Complete high quality of work according to specification					
10	Work out put matches the expectation established					
11	Work is organized and presented professionally					
12	Employee complete all assignments					
13	Employee consistently meets deadline					
14	Treats all customers with respect.					
15	Responds to customer needs within agreed time frames					
16	Maintains a safe and healthy workplace.					
17	Ability to take necessary and appropriate action independently					

No	Performance factor	Ratings				
		Exceptional	Exceed Expectation	Meets expectation	Needs improvement	Below expectation
18	Ability to consistently accomplish allocated jobs without supervisors					
19	using appropriate and efficient methods of conveying the information					
20	Organizes and expresses ideas and information clearly					
21	Expresses alternative points of view in a non-threatening way. Knows when it is appropriate to compromise and when it is important to take a stand					
22	Maintains high level of character and a professional attitude. Is able to conform and promote the company's standards of conduct					
23	Consider the extent to which the employee is cooperative, considerate, and tactful in dealing with supervisors, subordinates, peers, and others.					
24	Displays openness to learning and applying new skills.					
25	Adapts to new situations in a positive manner.					
26	Works well with others to achieve organization's goals.					
27	Willingness to accept a variety of responsibilities.					
8	Continually looks for ways to improve and promote quality. Applies feedback to improve performance.					

No	Performance factor	Ratings				
		Exceptional	Exceed Expectation	Meets expectation	Needs improvement	Below expectation
29	Utilization of resources The degree to which the individual has utilized funds staff or equipment economically and effectively.					
30	Ability to arrive at conclusion promptly and to decide a definite course of action.					
31	steadiness under pressure					
32	Initiating workable ideas, techniques, solutions; willingness to change/try new approaches.					
33	How well does the individual come to grips with unpleasant issues and seek to solve them by constructive action at his or her own level?					
34	how well the employee go above and beyond the call of duty in order to get a job done when he had to.					
35	How well the individual prioritize his/her task In a time when he/she had too many things to do					

Thank you for your considerable participation

Appendix 2
Reliability analysis of the Instrument

For Knowledge

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.854	.855	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
K1	21.6000	17.971	.778	.752	.813
K2	21.7333	18.781	.617	.633	.834
K3	22.0667	17.781	.766	.711	.814
K4	21.7333	20.638	.417	.752	.859
K5	21.8000	17.029	.661	.742	.828
K6	21.5333	16.124	.776	.837	.808
K7	21.9333	20.210	.360	.743	.870

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
25.4000	24.400	4.93964	7

For Skill

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.876	.878	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S1	35.2667	36.638	.786	.985	.852
S2	35.7333	36.210	.751	.968	.853
S3	35.5333	40.552	.445	.879	.873
S4	35.5333	35.695	.670	.968	.859
S5	35.6667	39.810	.523	.924	.869
S6	35.6000	37.543	.614	.964	.863
S7	35.3333	37.095	.531	.925	.870
S8	35.2667	36.924	.675	.962	.859
S9	35.8667	39.410	.458	.931	.873
S10	35.6000	37.829	.586	.945	.865
S11	35.9333	38.924	.420	.966	.877

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
39.1333	45.267	6.72805	11

For personal Attribute

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.715	.686	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
P1	30.0000	11.000	.652	.827	.629
P2	29.8667	12.981	.517	.832	.669
P3	30.0000	13.714	.301	.421	.707
P4	29.3333	15.952	-.040	.311	.758
P5	30.0000	14.429	.294	.453	.706
P6	29.8667	10.410	.636	.809	.631
P7	29.7333	12.352	.583	.590	.654
P8	29.5333	13.124	.519	.794	.670
P9	29.4000	15.829	.018	.551	.741

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
33.4667	16.267	4.03320	9

For Behavior

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.798	.795	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B1	26.1333	17.267	.304	.293	.804
B2	26.3333	13.810	.658	.742	.749
B3	26.2667	13.781	.752	.758	.733
B4	26.4667	15.552	.564	.563	.767
B5	26.2667	14.924	.639	.486	.755
B6	26.5333	15.695	.624	.571	.761
B7	26.2667	17.495	.282	.520	.806
B8	26.2000	17.029	.272	.487	.812

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
30.0667	19.924	4.46361	8

For the Whole Question item

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.919	.914	35

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B1	124.1333	252.267	.192	.	.920
B2	124.3333	240.667	.501	.	.916
B3	124.2667	239.210	.608	.	.915
B4	124.4667	241.838	.592	.	.915
B5	124.2667	241.924	.564	.	.916
B6	124.5333	245.410	.508	.	.916
B7	124.2667	249.210	.326	.	.918
B8	124.2000	239.886	.601	.	.915
K1	124.2667	245.495	.427	.	.917
K2	124.4000	244.686	.436	.	.917
K3	124.7333	240.781	.580	.	.915
K4	124.4000	245.543	.452	.	.917
K5	124.4667	234.267	.648	.	.914
K6	124.2000	228.600	.820	.	.911
K7	124.6000	250.400	.204	.	.920
S1	124.2000	238.457	.723	.	.914
S2	124.6667	238.524	.655	.	.914
S3	124.4667	246.267	.474	.	.917
S4	124.4667	234.838	.675	.	.914
S5	124.6000	244.971	.527	.	.916
S6	124.5333	238.410	.656	.	.914
S7	124.2667	237.352	.577	.	.915

S8	124.2000	238.457	.654	.	.914
S9	124.8000	245.457	.417	.	.917
S10	124.5333	243.838	.458	.	.917
S11	124.8667	239.981	.534	.	.916
P1	124.6000	244.114	.410	.	.918
P2	124.4667	243.981	.576	.	.916
P3	124.6000	241.257	.611	.	.915
P4	123.9333	252.067	.219	.	.919
P5	124.6000	258.114	-.036	.	.921
P6	124.4667	243.695	.366	.	.919
P7	124.3333	254.524	.103	.	.921
P8	124.1333	251.267	.270	.	.919
P9	124.0000	258.714	-.067	.	.921

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
128.0667	257.781	16.05556	35

Declaration

I the undersigned, declared that this thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been properly acknowledged.

Name: _____

Signature: _____

Date: _____

This thesis has been submitted for examination with my approval as a university Advisor.

Name: Wanga Leka

Signature: _____

Date: 29 June 2011

Declaration

This thesis is my original work and has not been presented for a degree in any other University, and that all sources of material used for the thesis has been duly acknowledged.

Name Yeditafna Adinew

Signature

Date 5/10/2002