ISSUES OF EQUIVALENCE IN ACADEMIC, VOCATIONAL AND OCCUPATIONAL EDUCATION ASSESSMENTS AND CERTIFICATION

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1.0 INTRODUCTION

The main emphasis in educational evaluation for which assessment is a major tool is on the learner and his/her learning progress. It is therefore incumbent on the operator of the learning teaching process (the teacher) to have a major input for his/her learner in the final assessment for better certification validity.

When dealing with the general area of assessment, it is necessary to reflect up on the changes in educational policies in Tanzania. As this paper will mostly try to compare the usual type of assessment wit the newly introduced Vocational Training institutions which is competence based. It is therefore imperative to reflect upon the changes in Vocational technical educational policies which have led to the evolution of the current system. Such historical perspectives would be handy indicators for the need of the current curriculum and assessment.

The development of tertiary institutions in the country is necessary for facilitation of job- creation and self employment through the increased availability of opportunities from such institutions. Emphasis should lie on the provision of quality education and training through curriculum review, improved teacher management, introduction and use of appropriate performance and assessment strategies. The integration of formal and non-formal –education relationships should be strengthened by institutions comparability and inter mobility norms within the two sub sectors.

2.0 EDUCATION AND TRAINING IN TANZANIA

The policies of education at pre-independence seemed to stress on practical skill-oriented type of education for Africans while the curricula for Europeans and Asians emphasized on academic work. The academic work was aimed at producing finalists for leadership positions and white –collar jobs. Such policies had a negative effect towards skill-oriented training by the local community. On the part of technical education at independence in 1961, the Government inherited two trade schools (namely Ifunda and Moshi) which offered programmes for the training of skilled workers. It was a five year training programmes, three of which were spent at the trade school, followed by two years of apprenticeship training in industry. Training then was offered in different skills (Motor Vehicle Mechanics, Fitting and Turning, Welding, Electrical Installations, Bricklaying and Masonry, Carpentry and Joinery, Plumbing, Painting and sign writing). After independence the broad policy of education and training has changed. The current economic liberalization policy has influenced the form and direction of the national education and training policy which broadly advocates among others in creasing access to education by focusing on the equity issue with respect to women, disadvantaged groups and areas in the country.

2.1 SHIFT IN POLICY

Future policies in Education and Training should emphasize on and give priority to provision of high quality education and training in terms of:

eradication of illiteracy; the development of Science and technology, increase of vocational educational institutions and entrepreneurship training. Efforts should also be made in developing the handicapped; the specially gifted and talented persons should be identified and developed. A general shift in these policies seems to stress on the development of the individuals and a leaning towards vocational training. It is therefore not surprising that Vocational training places are at high demand.

3.0 VOCATIONAL AND TECHNICAL TRAINING

A big number of our children attend and complete primary education, few reach secondary school education, but a good number drop out on the way, and only fewer reach our universities. The main reason is we have only few places available in the Secondary education and fewer for University education. Large numbers of the would be qualifying candidates don't get admission to these institutions. It is this group which needs an alternative and it is the one which forms the bulk of applicants to join vocational and other technical training schemes in the Country.

Vocational and technical training in the country in various trades is offered in the country in different Vocational training Centres all over the country and five technical colleges. There are two universities which offer degree courses in engineering the awards at our institutions are as follows:

Table 1. Awards.

GRADE	INSTITUTION
Artisan Courses (Trade Test 1,2,3).	Vocational Training ( )
Technician Courses (Full Technician Certificate)	Technical College (5 Colleges)
Advanced Diploma in Engineering Courses (ADE Certificate)	Technical College (Only 2 Colleges offer this course)
Degree Courses (BSC Engineering Degree)	University (only 2 Colleges)

VET – INSTITUTIONS IN TANZANIA.

ZONES	REGIONS	VET ISTUTIONS		
		VETA OWNED	OTHER PROVIDERS	TOTAL
1. Central	Dodoma and Singida	2	29	32
2. Northern	Arusha, Manyara Kilimanjaro and Tanga	3	163	169
3. Dar es Slaam	Dar es Salaam	1	149	150
4. Lake	Mwanza, Kagera and Mara	3	81	84
5. SouthWest	Mbeya and Rukwa	2	54	56
6. Highlands	Iringa and Ruvuma	2	75	77
7. Western	Morogoro and Coast	4	34	38
8. Western	Tabora, Shinyanga and Kigoma	2	41	43
9. South East	Mtwara, Lindi	1	23	24
TOTAL		**20**	**653**	**673**

4.0 THE PRACTICE OF ASSESSING

The evolution of the current practice in assessment in Tanzania takes as back to 1960s where external boards such as:

- City and builds of London Institute (CGLI)
- The East Africa Examinations Council (EAEC)
- The National Examinations Council of Tanzania. (Since 1974 todate).

As assessment procedures and awards for all non technical subjects are well known, let me now deal with the new concept which has been adopted by VETA (Vocational Education Training Authority) known as competence Based Education and Training (CBET) for most of the practical skills.

5.0 COMPENTENCE BASED EDUCATION AND TRAINING (CBET)

The aims of VETA are to provide the work qualifications and skills demanded in a given social and economic context, and to contribute to wards the implementation of national policies with regard to employment promotion, poverty eradication, private sector promotion, increased productivity, added value and enhanced competition in both local and global markets.

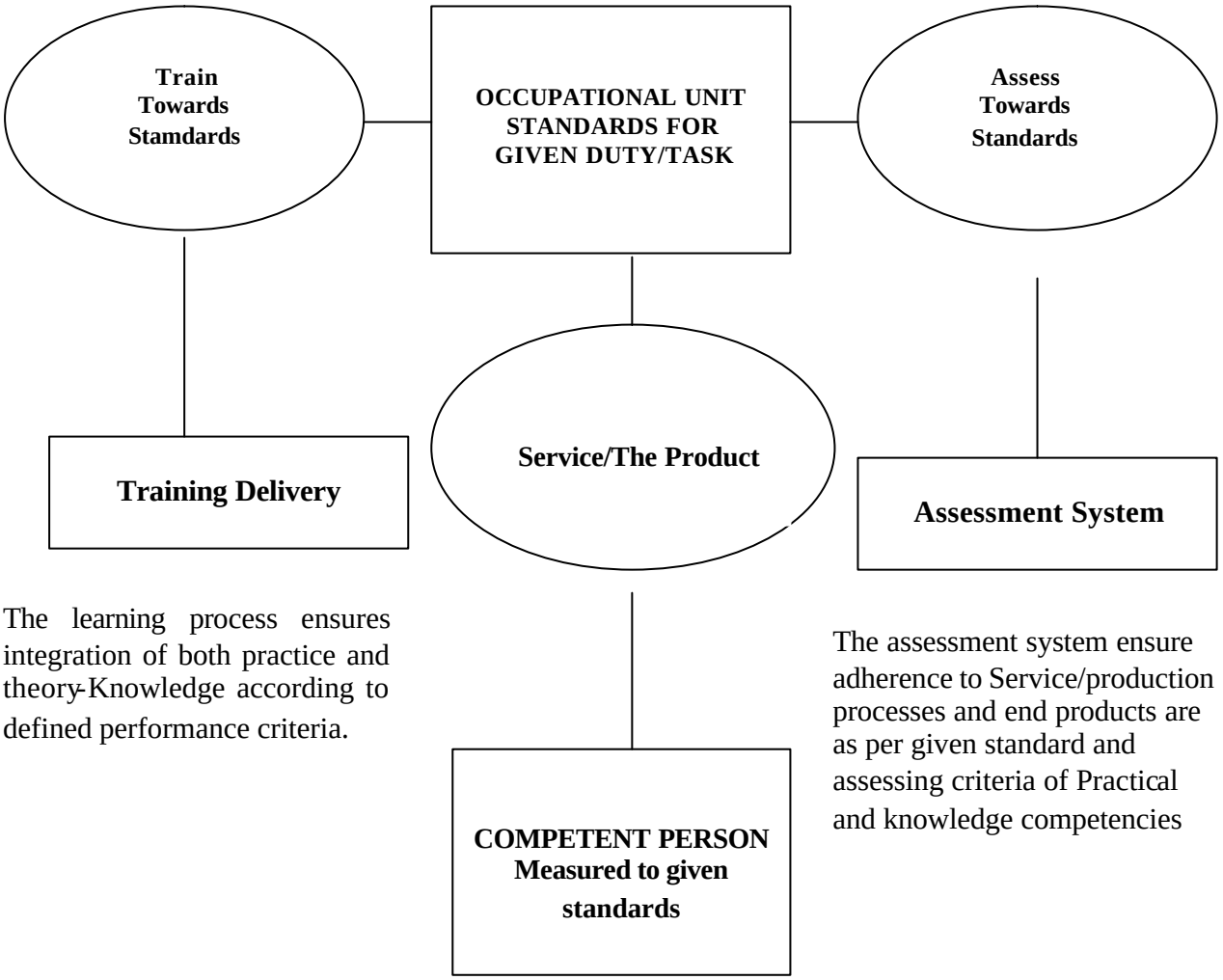
WHY CBET FOR VETA

- The competence Based Education and Training (CBET) concept enhances the efficiency and effectiveness of Vocational Education and Training (VET) to meet the user expectations through a standard based learning package. The success of training is not based on knowledge alone but the focal point is the occupational Unit standard whereby learning process is designed to meet the required standard and assessment is done against that standard.
- These changes which are being introduced to the VETA system are geared towards orienting training programmes to the needs of the markets and to equip VET trainees with all the required skills (technical, entrepreneurial and crosscutting) so that these candidates become "job creators" rather than "job seekers"
- This system is flexible in that, it gives the possibility of developing training programmes to meet specific needs of different areas and different target groups and to respond quickly to any charges in anticipation.
- Training is modularized which allows learners to choose specific (individual) training units according to skills needed for employment or self – employment.
- Training packages can be specifically designed for selected target groups either by using existing training units or by developing tailor made programmes. This has broadened training provision in the informal and agricultural sectors.
- The approach is comprehensive in that, the learning should take on board all necessary skills (technical crosscutting, business, etc.) to ensure that trainees performance is job related, be in formal or informal setting.
- Its flexibility in entry and exit has been beneficial in expanding training opportunities to reach out as many people who wish to get specific skills for income generation.
- The programme integrates theory and practice throughout institutional training. This enables the graduates to be reach in practical skills, and

become confident in joining the labour market after completion of institutional training.

- Trainee enrolment is based on assessment of prior knowledge and the exit, is determined by the required work performance.

CBET Operational Structure.



The learning process ensures integration of both practice and theory-Knowledge according to defined performance criteria.

The assessment system ensure adherence to Service/production processes and end products are as per given standard and assessing criteria of Practical and knowledge competencies

5.10 HOW TO FACILITATE CBET OPERATIONS.

Wherever this concept is put into practice in our case VETA, an occupational unit standard format has to be adopted. This format looks at a total occupation and its subsequent employable tasks, as analysed in a DACUM chart. This approach is beneficial in the sense that it gives a strong base for modulazised training in which the trainee may select specific units, the full cycle of units, or mix units from different occupations. The approach gives room for narrowing, broadening and even multiply by two, depending on employable requirements.

Trainee enrolment is based on assessment of prior knowledge and exit determined by the trainees, satisfaction that he has achieved what he wanted for job performance. The occupational units standards there fore form the basis for both formal long course and non formal short courses, as demanded.

The minimum criteria for a CBET programme is:

- Content directly related to work
- Focus on doing
- How and why
- Evaluation based on industry work
- Standard.

5.11 COMPARISON BETWEEN TRADITIONAL INSTRUCTION AND CBET

Another way to think about CBET is to compare it to the traditional form of instruction that most of us have experienced and are familiar with. Table 2 compares traditional instruction with CBET.

Indicator	Traditional instructor	CBET
Content based on	Knowledge	Skills (tasks)
Content determine by	Philosophy	Job analysis
Primary teaching methods	Lecture	Demonstration practice
Instructional materials	Few	Many
Facilities	Table, Chairs in a class room	Workshops, labs
Time	Fixed	Variable
Indicator Instructor	Traditional Instructor Knowledgeable	CBET Competent
Instructor background	Student to teacher	Skilled worker to instructor
Evaluation techniques	Norm reference	Criteria referenced (Industry standards)
Evaluation instruments	Written test	Performance test
Criteria for success	Certificate	Job Competence

5.12 DEVELOPING THE DACUM CHART

- Occupational requirements are continuously changing due to rapid technological changes. Vocational training tailored to meet Labour Market demands need to take on board an occupational analysis before the derived curriculum is developed.
- The DACUM (Develop A Curriculum) is an approach for developing a Curriculum for analyzing, describing and efficiently outline profiles which form a suitable base to design measures for vocational training. For each occupation, the duties and tasks are clearly described (for both formal and informal sector occupations). For example, one duty of a motor vehicle mechanic can be broken into tasks as follows;

DUTY	TASKS				
	1	2	3	4	5
General Service and Maintenance of a vehicle	Repair tyres and tubes	Under take vehicle lubrication Service	Service and adjust wheel bearings	Adjust foot and parking brakes	Adjust clutches

5.13 OCCUPATIONAL UNIT STANDARDS

For every task, there is a level of performance expected by an industry. Occupational unit standards provide statements describing the expected levels of performance for a table. Training programmes must determine what the standard is in order to guide instruction.

- One of the goals of CBET is to have employable Occupational Unit standards based training that meets workplace requirements for self –employment. The units help socially disadvantaged target groups alongside the traditional long term courses for the target group of school leavers, short-term training courses are offered to social groups who are seeking easily employment or those who want to improve their working performance.
- This system is designed to meet the training needs of various target groups in the formal and informal sectors. Flexibility in entry and exit is not based on given academic qualifications but rather on performance assessments. Admission is accorded to learners with prior learning and training at either the training centre or at the workplace.

5.2 ASSESSMENT, CBET WAY

The **CBET** approach provide self – regulatory and transparent quality assurance parameters at all levels.

? Standard generation level, in which work is done by experts and approved by Trade Advisory committers to ensure that standards reflect work expectations.

? Skill/qualification achievements are measured against a prescribed standard. This is not based on a grade, but is **PASS** or **FAIL.**

? Standards offer opportunities for comparability in the local and external markets.

? Trade Advisory Committees vett external assessors to verify assessment carried out at training centres.

? Finally at the end of the day it is the user who decides which courses are offered, with demand determined by whether they have contributed towards job creation, and whether they are contributing to productivity.

6.0 IMPLICATIONS FOR ASSESSMENT, AND TESTING

This type of assessment (unit based) has introduced flexibility in testing. In this particular case assessment is continuous and carried out once a given unit standard is achieved. This enables immediate feed back to the trainee and therefore enhances trainees motivation, since knowledge of progress and success becomes an integral part of the learning process. Since units are constructed from employable tasks in a particular occupation, a cluster of units formulates an occupational area, while description of unit – based qualifications defines the different levels.

6.10 CERTIFICATION.

Unit based certification/accreditation gives flexibility to those wishing to be certified for a particular task/job. However, for the purpose of carreer progression, national certification in case of VETA will be provided to accredit a level-based qualification. The process will involve:

? Unit certification by the Principal and Instructor to sign off a trainee, verifying competence achieved, with nationally accredited assessors validating the qualification.

? For those on long term training a log book will be filled out after every unit, so as to certify competence achievement. Once again an external assessor will verify attainment of required competence at a given level. A level-based certificate will be issued based on achieved required units in a given occupation.

The procedure is conducting national tests at three levels, based on modules which themselves are based on a cluster of units. Hence certification based on achieved competency for unit would mean a step towards accreditation. Regulation occurs through the use of external assessors who are nationally registered and vetted. These assessors are approved by the Trade Advisory Committees.

6.20 LEVELS IN QUALIFICATIONS

This new system has adopted the use of levels so as to differentiate jobs/occupations from one another, through classification of degree of difficulty, and level of skill in application in the work situation. The three – level definition therefore cuts across all occupations of the same level:

Level 1: Basic

Covers limited range of mainly routine repetitive and predictable work activities of the level carries limited responsibility with little or no authority. The worker at this level requires constant supervision.

Level 2: Intermediate.

The worker at this level may have some degree of responsibility and authority and requires general supervision and quality control.

Level 3: Advanced and Supervisory.

This stage consists of a broad range of varied and complex non-routine tasks, which are performed in varied contexts. At this level the worker acquires more responsibility for other staff, and is involved in problem solving.

6.11 BENEFITS AND CHALLENGES

Benefits.

Benefits already experienced by VETA from test piloting include:

? Cost efficiency and effectiveness.
? Improved relevance of training through comprehensive content fit for self and wage employment requirements.
? Transparency and consistency in assessment and qualifications assignments.
? Competences obtained in a much shorter period.
? Expanded coverage.
? Flexibility, and adaptability to both formal and informal sectors.
? Self- regulation and quality assurance through use of standards, and involvement stakeholders in standards generation and external assessment.

7.20 CHALLENGES IN IMPLEMENTING CBET

? How to handle the large demand for socially oriented training for the informal sector and unemployed youths in a bid to promote the private sector.
? How to develop concepts for organizing and developing small and medium enterprises.
? How to address the insufficiently supported sectors such as agriculture service sector, finance, hotels, tourism, mining and food processing.
? How to change, the attitudes of provider.
? How to develop a qualification framework of regular technical training.
? How to ensure financial sustainability for **VET** providers, particularly considering that Vocational Training is also a social function and cannot be managed by finance through training fees alone.

8.0 CONCLUTION.

CBET type of assessment and certification can be recommended as best for all those subjects which are practically oriented and project work. For those countries which have not started making use of the programme, it is recommended that they implement the following:

? Use of **DACUM** chart as a basis for unit standard development.

? Use of occupational unit standards as a framework assuring quality of **VET** and provision.

? Integration of business and entrepreneurial skills to motivate VET graduates towards job creation and self –employment.

? Introduction of target oriented training focusing on those with limited access to **VET** eg. Girls, women, youths and rural populations.

An example of a occupational Unit standard

TRADE NO: 7135
TRADE TITLE: PLUMBING AND DRAINAGE
LEVEL: 01
MODULE NO: 02
MODULE TITLE: PIPE AND TAPES
INIT NO: 7135-01-02-02
UNIT TITLE: PIPE BENDING

Performance Criteria: A person who has achieved this unit must be able to bend various types of pipes according to drawing specifications, mark or construct types of pipe bends and show on the drawing and to the specified measurements, prepare and cut the pipes according to the required lengths.

He/she must be able to form different bends on a pipe made from different types of materials (steel, PVC, Copper) as per markings using the tools/machine as directed in the manual.

- Free from distrortion,
- No. Exercise markings
- Angle be 300
- Dimension be 3 mm

Maximum time frame depends on the size, type of a pipe and bend. An average time of 5 hrs should be enough for each type of bend, and can very according to method used.

Range statement: This unit can be achieved at the workplace or in the Institution workshop with one helper. Following tools must be available for the trainee.

- Rule (steel rule, folding rule etc.)
- Steel tapes 5m
- Pipe bending springs
- Pipe bending bloc
- Coppers tube bending machine
- Ball pain hammer.
- Sand
- Blow lamp
- Bossing stick
- Hydraulic bending machines
- Hacksaw blades
- Mandrel and tallow
- Followers
- Rasp
- Pipe vice.

Evidence Requirement And Assessment Guidance.

Practical performance.

Direct performance Assessment:	Details the situations required by the performance criteria against the achievement of the standard. It must be stated of which level of performance evidence. (Is the person able to do the tasks alone or it same guidance required etc.) It also details how much evidence is needed.
Product assessment:	Assessment of the product the person has produced or the actually outcome the person should be able to do. Quality requirements must be stated here.

Knowledge evidence

Underpinning knowledge:

Detailed knowledge of:	Methods used Principles Theory
Circumstantial Knowledge:	Detailed knowledge about e.g. legislation, culture, different styles and also responsibility structures. (Actually it indicates who has the responsibility for the quality etc.)

Assessment Guidance

Assessment methods:	State the different kinds of assessment methods use for the evaluation of the person, remember that the assessment methods should mostly by directed towards the product and the outcome and not against the theory.

Evidence Requirement and Assessment Guidance

Practical Performance

Direct Assessment:	The trainee be able to prepare sketches and drawings of different types of bends prepare work pieces, from different types of pipe bending methods. The bends shall be positioned according to the required precision and shape. The trainee must be capable of maintain be pipe bending machines and remove tools and machines and store them in the tool kit or according to workshop rules and regulations.
Product Assessment:	A piece of pipe precisely bend to the required angle and that fits into the alignment.

Knowledge Evidence

Underpinning Knowledge:

Method used:	The trainee must explain why he/she has chosen the method to the referred material e.g. steel PVC.
Principles:	The trainee must explain why machine bending is preferred to forge bending.
Theory:	The trainee must explain why the PVC required heating and need to fillit with sand before bending. He/she must explain the difference between bending a thermosetting plastic and thermoplastic.
Circumstantial Knowledge:	Detailed knowledge about safety procedures. How to prevent accidents which might occur in connection with pipe bending, first aid knowledge.

Assessment And Guidance.

Assessment Method:	Observation and conversation with trainee while performing. Assessment of product.

From Occupational Unit Standards to Learning:

One data from the real work of work has been assembled in the form of occupational unit standards work of developing instruction then begins in honest.

Example of Occupational Unit Standards

1.	Occupation:	Motor Vehicle Repair & Maintenance
2.	Module:	Vehicle General Service
3.	Unit Title:	Repair tyres
4.	Performance Criteria:	Able to remove a wheel from a vehicle,

mend tubes and tubeless tyres without leakage.

5. Range Statement: The following tools and equipment must be available
   - Jack
   - Support stands
   - Wheel spanner
   - Tyre leaves and harmer or tyre removal machine.
   - Mending equipment & Materials.
   - Compressed air or foot pump
   - Water bath
   - Oil or grease
   - Pressure gauge

6. Practical Performance:
   6.1 Direct Performance Assessment: Able to:-
   (i) Jack up the vehicle and place support stands according to safety rules;
   (ii) Remove a tyre and rim using prescribed tools according to safety rules;
   (iii) Identify puncture using prescribed methods;
   (iv) Clean and mend both tube and tubeless tyre using prescribed mending equipment;
   (v) Clean the inside of a tyre;
   (vi) Assemble tube and tyre using prescribed tools;
   (vii) Grease wheel stud threads before assembling wheel to vehicle;
   (viii) Tighten wheel nuts according to vehicle specifications;
   (ix) Lower jack according to safety regulations;
   (x) Remove Jack and other tools and store them as per work place rules;
   (xi) Clean the work place area.

   6.2. Product Assessment
   - Tyre or tube mended no leakage and durable, tools cleaned and stored as prescribed.

7. Knowledge Requirements: Detailed knowledge of:
   - Safety procedures on tyre repairs
   - Accidents caused by tyre failure
   - First Aid
   - Tanzania Traffic laws regarding tyres on vehicles.
   - Construction and operational principles of tyres and tubes.

COMPONENT		DESCRIPTION
1	Year and month	Year and month.
2	Week number	The week number (s) in sequence during which The learning objective will be presented.
3	Number of sessions	The number as session required to fully cover the learning objective (One session is 45 minutes)
4	4,1 contect of unit 4,2 Major steps	The unit broken into main tasks (some unit may have several tasks) The tasks is further broken into a series of major steps
5	Training and learning	The described learning objective should be designed according to the task and step.
6	Assessment guidance	This should be in accordance with specifications in the unit standard based on: ▪ Direct performance ▪ Product assessment ▪ Knowledge assessment
7	Instructional strategies: 7.1.- Instructional Strategies: 7.2 - Trainees activities	 What will the instructor be doing in order to accomplish the learning objective. What will the the trainees be doing to acquire the skills and knowledge.
8	Resource and costing	Indicates the cost of training materials in order to accomplish learning objective list also the tools and equipment required as per range statement.
9	Expected Product use	Indicate how the product will be used and if it to be sold at what price.
10	Remarks	Indicates how the product will be used and if it is in the store.

On the next page a format is set up for the scheme of training

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