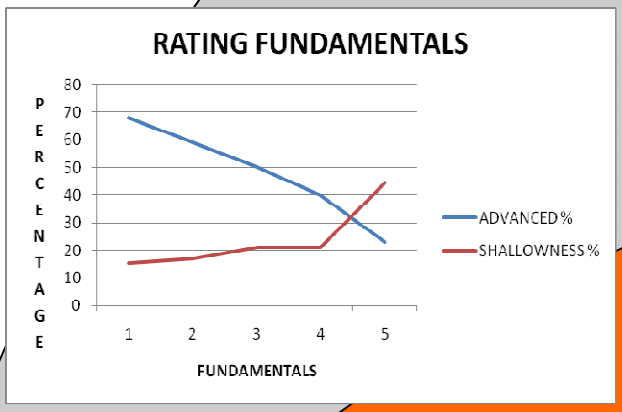
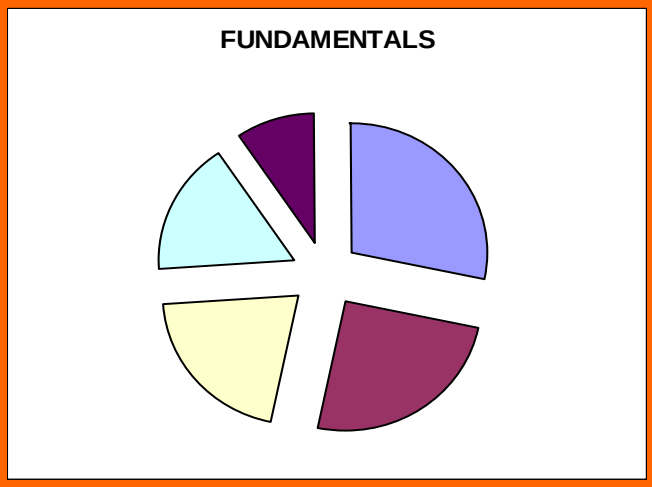
CURRICULUM FUNDAMENTALS EVALUATION REPORT





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CURRICULUM FUNDAMENTALS EVALUATION REPORT

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Preface

The curriculum evaluation for fundamentals was an exercise that aimed at establishing the status of the current curriculum fundamentals in responding to changes in the labor market.

The target was all the trades that use the fundamentals namely; general fitting, automobile, motor vehicle mechanics, electrical installation, brick laying, plumbing, carpentry, painting and decoration, printing, welding and fabrication, and refrigeration and air conditioning.

The survey was done between February and March 2009 in Chitipa, Karonga, Mzuzu, Nkhatabay, Nkhotakota, Lilongwe, Salima, Mangochi, Liwonde, Zomba, Blantyre, Thyolo, Mulanje, and Chikwawa districts.

The exercise was being coordinated by the Research and Development Office within Planning and Monitoring Division in TEVETA, but the Curriculum Development Office within the Quality Assurance Division will proceed in coordinating the review process.

The data is available in Stata and SPSS packages.

ACRONYMS

ATP	-	Apprenticeship Training Program
CBET	-	Competence Based Education and Training
DAPP	-	Development Aid from People to People
GDP	-	Gross Domestic Product
GOM	-	Government of Malawi
IASB	-	International Accounting Standard Board
JC	-	Junior Certificate
MGDS	-	Malawi Growth and Development Strategy
MLVT	-	Ministry of Labor and Vocational Training
MSCE	-	Malawi School Certificate of Education
NSO	-	National Statistical Office
OJT	-	On-the - Job Training
OSH	-	Occupation Safety and Health
PSTP	-	Private Sector Training Programs
SDI	-	Skills Development Initiative
SED	-	Small Enterprise Development
TEVETA	-	Technical Vocation Education and Training Authority

WORKING DEFINITIONS

Assessor- Is a person who is accredited by TEVETA to conduct TEVET assessment. Whereas assessment shall mean a continuous process of gathering evidence of the performance, knowledge and values of a leaner in relation to a competency standard which is registered on the Technical qualification Framework.

Facilitator-This is the one who is not directly involved in teaching, but makes sure that the whole exercise is going on well and assures that the product has the quality that is expected. In our case we are referring to TEVETA and Ministry of Education.

Head of department-These are officials in the colleges who are responsible for the daily tasks of a particular group/division of the whole, known as a department.

Head of section- These are also officials of colleges who are responsible of special tasks in a sub group/division of the latter known as a section.

Trainee- The term refers to the students in the colleges. This disregards whether right in school or on attachment.

Trainer-This is the person involved in instructing the trainees.

Supervisor- This is an in-charge of a section in an industry as given by the chain of command and span of control.

Verifier- The official who is responsible for monitoring practice, advise and support assessors, and keeping records of assessment decision.

1.0 INTRODUCTION

1.1 Background

The Technical Entrepreneurial and Vocational Education and Training Authority (TEVETA) was established in 1999 following the Act of Parliament dated 14th February 1999. The establishment was a result of the realization that the technical and vocation training received low priority compared to other sectors. The sector was characterized by; lack of a national coherent, demand-driven policy, minimal involvement of the private sector, inappropriate legislation, guidelines and by laws, non-responsive, non-flexible institutional structures, limited national technical qualifications system based on outdated curricula and recognized standards, and insufficient, unsustainable financial base and ineffective financing mechanism. The objectives of establishing the system was to; promote an integrated, demand driven competency based modular technical education and training system, monitor gaps between supply and demand for the skills, promote managerial and business skills, and spirit of entrepreneurial culture with regard to both wage and self-employment, facilitate sound and sustainable financing and funding mechanisms for technical education and training, and to facilitate and bring together the expertise and moderate the different interests of stakeholders of technical education and training (GOM, 1999, p 3).

The system is based on six principles which are linked to the realized deficiencies stated above. The principles are; TEVET will be an integrated system, demand driven, based on Private-Public Partnership, comprehensive in its nature, Accessible and flexible, equitable; and independent and autonomous (MLVT, 1998 p 6).

Broadly the system's vision is to have "*an adequate and sustainable generation of internationally competitive skilled workforce capable of spearheading the country's production and export-led socio-economic growth in a socially responsible manner*" (TEVET 2007, P.5), and is built on the mission statement of directing sustainable acquisition of internationally competitive and recognizable technical, entrepreneurial and vocational skills by the Malawian workforce, (ibid).

The mission statement is in line with the National Vision 2020 which enshrined people's aspirations and hopes, and a perception of how to achieve them by some future date (GOM, Vision 2020 Initial Concept).

1.2 TEVET programs

TEVETA facilitates five training programs namely; Apprenticeship Training Program (ATP), Private Sector Training Programs (PSTP), Informal Sector Skills Development Programmes (ISSDP).

The Apprenticeship Training program (ATP) targets the training colleges in which students in different courses are enrolled. The enrollment of these students is on a cost-sharing principle. The colleges that are running this program are; Soche Technical College, Salima Technical College, Namitete Technical College, Mzuzu Technical College, Livingstonia Technical College, Phwezi Rural Polytechnic, Nasawa Technical College, Lilongwe Technical College, Malawi Government Press and Printing, and MIRACLE Technical College.

Private Sector Training Programs (PSTP) program targets the private sector as the name suggests. The aim of the courses is to promote skills at the work place. The training is in three levels namely: Training needs analysis; facilitating the development of training programs; Upgrading, refresher and specialized training, and the reimbursements of direct training costs.

Through the ISSDP TEVETA facilitates the Skills Development Initiative (SDI), Small Enterprise Development (SED) programmes and On-the-Job Training (OJT) programmes.

The aim of the SDI is the provision of training through the enhanced Traditional Apprenticeship Scheme. The programmes under this initiative are run by the Service Centers in collaboration with the facilitation units spread throughout the country. The facilitation units are DAPP Mikolongwe College in the Southern Region, Don Bosco Technical College in the Central Region, St John of God, Miracle College, and Children

Village in the Northern region. The spread of the units across the country insures the fulfillment of the equal opportunity and access principle of the TEVET system.

The other program that targets the informal sector is the Small Enterprise Development (SED). The difference between SDI and SED is that, SDI targets directly individuals with traditionally acquired skills, while SED targets small enterprises of 5 to 20 people. The objective is to identify entrepreneurs within the Small and Medium Enterprise sector (SME) and facilitates the development of businesses that would support the emergence of a more businesses in the informal sector.

On Job Training (OJT) program, students are attached to companies and institutions in which they are trained. The learning process is simultaneous to the job being done. It is a focused way of training. In this program, TEVETA attaches the youths from within the area where the project sites are. Provided to the youths is a modulated training.

There are basically two approaches to training in TEVET sector in Malawi; the Traditional approach and the Competency Based, Education and Training commonly known as CBET. The CBET refers to the training where emphasis is on skills; ability to perform tasks as stipulated by the standards set by industry, knowledge; ability to articulate the theory behind the learning outcome; and attitude; the ability to show professionalism in handling oneself and job assignments. Contrary to the Traditional approach, CBET's approach emphasizes on both institution and industrial training. The assessment is also in the three per belief of their importance by the industry.

1.3 An overview of the Malawi Economy

The manufacturing and service sector within which this study is being done, is largely made up of the private sector and is characterized by low contribution of 13 percent to the Gross Domestic Product (GDP) compared to 40 percent from the agricultural sector in 2005 (GOM 2004. p11), and for 2007, 12.4, estimated at 12.6 in 2008, and 32.4 and estimated at 32.9 in 2008 respectively (Chikaonda 2008). The service and industry sector has been characterized by significant shortage of skilled workers to supply the private sector with a productive workforce, and the education system not producing enough graduates to meet current and future economic needs. Besides that, training offered is

inappropriate for business needs. Escalating the problem is that, the challenges in the two mentioned sectors have not been addressed (GOM, 2006 p.36).

2.0 LITERATURE REVIEW

The Skills Survey done by Chingeni M. et.al laments that marginalized groups have not participated in the TEVET courses, and if some have they have been very few. In addition, they state that the industry has shown that there are very few skilled ladies in employment. They also note that the quality of training is generally low, a fact attributed to the inadequacy of facilities and equipment in colleges. From the necessity of the courses, they point out the need of targeting industrial specific needs. A special mention is made of the policy to take account the transfer of the economy to capital intensive, while being mindful of preserving traditional crafts. From the curricula perspective, they suggest the incorporation of surveying, technical drawing, panel beating, electronic and computing, and other elements related to traditional crafts. However the recommendation of technology transfer is not realistic for economies like that of Malawi where we have a lot of people not employed as stated in the Economic Report of 2004 p 63. In 2003 there was a 98.8 percent increase of these registered job seekers compared to those of 2002 with a total number of 9412 from 4898 in 2002, however only 7410 vacancies were registered with the ministry, leaving 2002 unemployed.

Chingeni M. et al further notes the lack of qualified trainers more especially in textile industry. They also note the lack of the system to prepare graduates for entrepreneurship. They further suggest that entrepreneurship should not to be limited to the youth graduating from TEVET, but it has to be the window of opportunity even for older persons who are exiting from the formal sector.

The survey found that there is rigidity in the TEVET curricula, making it not responsive to the market. The recommendation was to have a curriculum review. The requirement is to have a curriculum that is responsive to the changes in the industry. Further to that the report recommends the strengthening of the co-ordination between TEVETA and support institutions.

Malawi in the late 1990s had an active labor force of about four million, mostly with a low level of formal education and poor occupational and fundamental competencies. However even those who underwent significant schooling were not really equipped with skills required in the labor market. The figures bare it that 760, 000 people were in the formal sector, while about 320, 000 were self employed in the informal sector. The challenge, however, was that every year 200, 000 young people entered the labor market, but only 30, 000 to 35, 000 new jobs were being created in the formal sector (TEVETA, 2002) . This then translates to a large informal sector and young people who need training. The solution to this problem would be a TEVET Authority which will be focusing on the needs of the market and how these needs can be met through effective skills development (Chingeni et al P. 1).

The Malawi Government developed the Malawi Growth and Development strategy as an overarching policy document in economic growth of the nation. The MGDS mentions some priority areas in service and industry sector development one of which is maintenance of an effective and skilled labor force. Though the maintenance of an effective and skilled labor force has been outlined in the MGDS as one of the Government's activities, the same laments the existence of inadequate skilled workforce with insufficient technical and vocational training opportunities. The MGDS further laments that labor skills do not meet needs of private sector and the educational system is not producing enough graduates to meet future economic needs. There is also the existence of poor supply of training with inappropriate /irrelevant curricula, poor quality of trainers and poor management of training. The strategy goes on to state the lack of science and technology training to support new skills for growth and lack of a plan to expand existing colleges into science and technology centers. Escalating the problem, is also the insufficient number of vocational graduates with sufficient skills for businesses. Vocational training facilities have obsolete equipment and insufficient training programs with a high cost of machinery. Lastly it points out the lack of community, village polytechnics to equip rural people with vocational skills, few linkages between informal and formal sector training programs in vocational areas, and no institutional mandate to oversee technical programs previously offered by Polytechnics (ibid). From the MGDS, it

can then be pointed out that there is a need to generate skilled and effective labor that will later be maintained.

3.0 METHODOLOGY

The section presents the problem statement, research question, objectives of the research, methodology, sampling, expected results, and assumptions and limitations.

3.1 Problem Statement

The study was prompted by the following problems:

- ✓ There were queries from stakeholders regarding fundamentals and occupation standards. Among the queries were the following;
  - ➢ The content being shallow/ advanced in fundamentals.
  - ➢ Fundamentals in occupations not being relevant to the occupations. A good example is graphics in food production while leaving out communication in French which is widely used in stems of food names.
- ✓ The fundamentals not addressing changes in the labor market among which are technological and environmental changes. For example, the use of computers has not been encouraged from level I, which could be covering the basics.
- ✓ It is a legal requirement to review the curriculum after three years. The current curriculum has out lived its life span.

3.2 Research Question

The research question for the whole curriculum evaluation was; what problems are there in the current curriculum on fundamental subjects? The question sought to find out the problems that are making the current curriculum on fundamentals not responsive to changes in the labor market.

3.3 Objectives

The TEVET Act provides for the Curriculum review in its part III sub section 5c, h and q. It is in this spirit that the evaluation aimed at achieving the following objectives.

- ✓ Collecting data that will be used in the coming curriculum review and ensure that the curriculum developed after review is responsive to the changes in the labor market.

- ✓ Coming up with a guide that will be used for later reviews.
- ✓ Coming up with a well structured system of reporting queries and documentation of the same.
- ✓ Meeting the legal requirement of curriculum review.

3.4 Methodology

The methodology will look into the approach used in collecting data and the sampling procedure that was relevant for the study.

3.4.1 Approach

Due to the nature of the study, a combination of qualitative and quantitative data collection tools was used. The combination was used in order to maximize the strengths of the two approaches.

The proposal expresses the need of writing ethnographic diary that would capture his/her observation both in the course of the interview and in transit (before and after the interview). However, due to the nature of the work it was not possible to continue with the methodology. At the end of the study contrary to the proposal every research assistant wrote a report of the whole exercise..

Stata program has been used for analysis of the quantitative data, while inference has been used for qualitative data. The latter is a change from the proposal where coding, memoing and concept mapping were proposed. However the two if juxtaposed would still arrive to same conclusion.

3.4.2 Sampling

The sample had four strata namely; Institutions, Industry, Facilitators, and Others, (those who are partners or funding agencies). *(Refer to appendix 1)*

Four quantitative and two qualitative instruments were used in the collection of data..

Systematic random sampling was to be used for sampling; however there was low response rate in provision of data that made it not possible to continue the use of the methodology. This prompted the use of simple random sampling.

3.5 Expected Results

It is expected that at the end of the exercise, the following will be established;

- ✓ The standard for curriculum review will be set.
- ✓ Problems currently faced in implementation of the curriculum on fundamentals will be registered.

3.6 Assumptions and Limitations

3.6.1 Assumptions

- ✓ The major assumption guiding the exercise was that of the existence of symmetric information that enabled the subjects[1] to contribute objectively to the review.
- ✓ The subjects were experts/ professionals or were familiar with the trade or area of their expertise
- ✓ The gathered information is all vital and the triangulation enabled collection of all vital and balanced information for the review.

3.6.2 Limitations

- ✓ There was lack of capacity to use instruments in tandem and to insure quality.
- ✓ Lack of data from which to derive samples.
- ✓ There was lack of literature for review.
- ✓ The information market in Malawi is not symmetric.
- ✓ There is lack of data for comparative analysis of findings.

[1] In this case the interviewees/ respondents

4.0 RESULTS AND FINDING

4.1 Response rating and sample characteristics

Per the scope of this study facilitators meant those involved in managing the TEVET sector in Malawi. The sample design was of nine facilitators, however only eight were interviewed, representing 89 percent. The sample comprised of TEVET officials -three, Ministry of Education Official - two, Industry Facilitators -one, and Master Trainers -two of which all are experienced within their sway.

The total sample of industries and institutions from the tabulation sheet was 326, disregarding the existence of multiple faces, meaning disregarding whether one holds different positions within the TEVET system. For example one person can be a verifier, at the same time a trainer. Those who were interviewed from the sample list were 173 translating to 53 percent. For single faces, 46 came from the industry and 66 came from the institutions indicating 41.1 percent from the industry and 58.9 percent from the institutions respectively. The rest are multiple faced.

The trainers interviewed were as outlined in the table below:

Table 4.1.1 Summarizing occupations of trainers

	Interviewed	Percentage
Carpentry and joinery	10	14.49%
Automobile	10	14.49%
Bricklaying	9	13.04%
Printing	3	4.35%
General fitting	3	4.35%
Other	1-2	59.43%

Breaking down the distribution further according to roles being played within the TEVET system, the sample targeted four Principals or heads of training institutions, six Deputy Principals, sixteen Head of Departments, seven Head of Sections, sixty Five trainers/assessors, twenty one internal verifiers, and twenty one external verifiers. This brings the total to 140 indicating the existence of multiple faced respondents totaling 62. It has been observed that the multiple faces exists between Principals or Deputy Principals who also serve as heads of department or trainers, head of department who also serve as trainer/assessor and this is the most prevalent, trainer/assessor who also serve as internal verifier which is the second most prevalent, trainer/assessor who also perform as external verifier, and trainer/assessor or deputy principal to supervisor.

A total number of thirty two internal and external verifiers out of the target of 66 were interviewed representing 48 percent. The verifiers were as outlined below:

Table 4.1.2 Verifiers Interviewed

Occupation	Number interviewed
Carpentry and Joinery	7
Automobile Mechanics	6
Bricklaying	5
Fabrication and Welding	2
Printing	1
Electrical Installation	1
General Fitting	4
Vehicle Body Repairing	1
Computer Applications	1
Accounting	1
Communication	1
Painting and Decorations	1
Tailoring	1

The industry as outlined in table 4.1.3 has a representation of thirty one supervisors from a designed sample of forty two representing 74 percent. In the table the highest number of respondents is in bricklaying..

Table 4.1.3 Summarizing Occupations of Supervisors in the industry

	Interviewed	Percentage
Bricklaying	5	16.13%
Tailoring	4	12.90%
Printing	3	9.68%
Automobile	2	6.45%
Painting and decoration	2	6.45%
Electrical installation	1	3.23%
Fabrication and welding	1	3.23%
Secretarial studies	1	3.23%
Book keeping and accounting	1	323%
Hotel and catering	1	3.23%
Other	10	32.26%

A total number of one hundred and ninety trainees were interviewed out of three hundred and ten indicating a 61 percent. Out of these one hundred and sixteen are still in school, sixty four on attachments, five CBET graduates and five traditional graduates, representing 60.85 percent, 33.86 percent, 2.65 percent for the last two respectively. The trainees came from the following occupations, carpentry and joinery- fifty four, automobile- twenty eight, bricklaying- twenty four, general fitting- fourteen, plumbing- ten, hotel and catering- nine, printing- seven, electrical installation- six, painting and decoration- six, vehicle body repair- five, refrigeration and air conditioning- four, wood work and machining- three, secretarial studies- one, and other which comprised of auto electric, motor vehicle electrics and textile and designing had an aggregate of seven.

Table 4.1.4 Summarizing Occupations of Trainees Interviewed

	Interviewed	Percentage
Carpentry and joinery	54	28.42%
Automobile	28	14.74%
Bricklaying	24	12.63%
General fitting	14	7.37%
Fabrication and welding	12	6.32%
Plumbing	10	5.26%
Hotel and catering	9	4.74%
Printing	7	3.68%
Electrical installation	6	3.16%
Painting and decoration	6	316%
Vehicle body repair	5	2.63%
Refrigeration and air conditioning	4	2.11%
Wood work and machining	3	1.58%
Secretarial studies	1	0.53%
Other	7	3.68%

The year of joining the technical education system ranged from 1994 to 2008, with the majority coming from 2007 indicating 31.22 percent, seconded by 2008- 30.16 percent, 2006- 25.4 percent, then 2005- 10.58 percent. Out of these trainees, 124 have ever had attachment before the time of interview, indicating 66.31 percent. Most of these it was in first year, with a descending pattern of 74 percent, 47 percent, 29 percent, and then 2 percent in chronological order from lever 1 through lever III, not suggesting an inverse relationship but due to the nature of the sample which has a declining pattern of representation with the majority 61.4 coming from 2007 and 2008.

Looking at the background of the trainees, it has been observed that based on their previous qualification best three subjects, the majority are good in languages, seconded

by sciences, then humanities. In relation to the same, 94.18 percent of those joining the CBET system are of Malawi School Certificate of Education, and 4.23 percent are of Junior Certificate.

For TEVET partners the sample was looking for twenty seven however only two were interviewed, indicating 7.4 percent. The low response was due to the fact that it was not easy to get the partners.

Table 4.1.5Summarizing the sample distribution per their role in TEVET system

	Target	Interviewed	Percentage
Facilitators	9	8	89%
Institutions	326	173	53%
Verifiers	66	32	48%
Industry	42	31	74%
Trainees	310	190	61%
Partners	27	2	7.4%

4.2 Fundamentals delivery and relevance

The section will consider the delivery of fundamentals *i.e.* characteristics of trainers, courses, the time allocations and constraints in delivery. The section will further analyze the relevance of fundamentals *i.e.* the importance of fundamentals and their status.

4.2.1 Delivery

Among the crucial elements of facilitators work is the visit to colleges through which observations and advisory roles are well carried out. The facilitators who participated in this study, five took the initiative of visiting colleges the term between January and February 2008 representing 62.5 percent of the facilitators sample. The visits ranged from one to fourteen times, where the ministry of education recorded the highest. Three among those who visited the colleges took a special interest to see the lesson plans representing

60 percent, and only one found that it was in line with his expectation representing 33 percent of those who checked the lesson plans and 11 percent of the sample, and two representing 40 percent of the latter observed lesson delivery, indicating 22 percent of the sample.

Seven have ever observed delivery of fundamentals representing 87.5 percent of the sample. Four have ever observed delivery of numeracy and two found the delivery appropriate. Four observed delivery of occupation safety and health and two found the delivery appropriate. Six observed delivery of science fundamentals, three found the delivery of science appropriate and one was not sure. Four observed entrepreneurship, two found the delivery appropriate. Lastly four observed communication, three found it appropriate, and one was not sure.

Adding to their observation, several reasons have been put forward as hampering effective delivery of fundamentals ranging from human capacity, resources and planning. It has been observed that teachers who are teaching the fundamentals are not knowledgeable of the subject they are teaching, coupled with lack of training of these teachers and lack of motivation. As also found by Chingeni *et.al* (*ibid*), it has further been pointed out that the delivery is not effective because of lack of teaching and learning materials. From a planning perspective, it was observed that teachers don't plan to the extent that the fundamentals are not there on their timetable.

However, contrary to their observation, the research assistant observed that, the six technical colleges that were visited had fundamentals allotted on their time tables. Further analysis has shown that the visits of facilitators are low, highest in terms of frequency being Nasawa Technical College three times, and Soche Technical College once and the rest are not visited by the facilitators.

Looking at the credit hours stipulated in the modules for one to master competences, 84.13 percent of trainers state that they are adequate and 83.33 percent of the verifiers subscribe to the same. Further analysis shows that 82.58 percent of the trainees also are subscribing to the adequacy of the credit hours. However 68.28 percent laments the

inadequacy of resources for delivering fundamentals modules in colleges as also pointed out by facilitators. It has further been pointed out that the absence of the course materials has contributed to the delays that are seen in finishing course work consequently resulting to trainees staying long in the colleges. They point out that materials like modules are not available if available then not on time. An example is given of Government Press Printing School where they will be in school for five years.

Apart from the course materials and inspection problems that affect the calendar, 28.33 percent expresses problems with trainers and funding. They state that the trainers are few and lack commitment, and there is an overload in terms of subjects. For funding the concern is on late funding that delay the purchase of workshop equipment. They therefore recommend close monitoring and inspection.

On average the trainees learn fundamentals thirteen hours in a week, with the highest being fifty two hours in a week *i.e.* 2006 intake at Government Press. The lowest is two hours in a week, and the colleges are Soche Technical College (2006 and 2007 intakes), Mzuzu Technical College (2008 intake) and Namitete Technical College (2008 intake).

The lack of training has not only been noted by the facilitators. The verifiers noted the same as a complaint raised by the trainers. In the institutions, namely; Miracle, Livingstonia, Phwezi Rural, Mzuzu, Namitete, Lilongwe, Salima, Nasawa, and Soche Technical Colleges, 69.12 percent have ever attended training in CBET mode of delivery. Within the distribution Nasawa is leading with eight seconded by Salima five then Phwezi Rural four. The other colleges range from one to three. Comparing the table below (*Table 4.2.1*) and the one summarizing the sample (*Table 4.1.4*), it shows that though some trainers attended CBET training, but they are not teaching fundamentals.

Table 4.2.1 Distribution of trainers trained in CBET delivery

Institution	Number
Nasawa	8
Salima	5
Phwezi	4
Other	1 to 3

Most of these attended the course in 2008. However 19.7 percent of those who teach fundamentals have never been inducted in CBET mode of delivery. For those who have been inducted, they have found the course relevant. For those who have never attended one, it is because they have never been called for induction. However 78.57 percent of those who teach fundamentals and are confident enough in delivering fundamentals, are those who have gone through the induction course in CBET delivery, and 81.4 percent of those who found the training relevant are the ones who are confident enough in delivery of the fundamentals.

Reasons related to the same have been given by those who lack confidence in delivering fundamentals. They state that they lack confidence because they don't have knowledge of the fundamentals; content is new to them, not detailed, and lack reference materials. Secondly, they don't have enough equipment to use in fundamental experiments and teaching aids, with special reference to OSH. Subscribing to the same, 85.94 percent of the trainers lament the absence of materials in teaching fundamentals. The last thing on structure is that the modules do not flow the way they are supposed to be. There are assessments and content gaps making it hard to assess the trainees' performance.

Further to this, the structure of the institutions reveals a problem. It has been observed those that are handling fundamentals some are temporally and some are permanent indicating either a shortage of fundamental teachers or misallocation. The range of those

teaching fundamentals is from 1 to 8 per institution. The table below shows the distribution.

Table 4.2.2 Distribution of Teachers handling fundamentals

Name of College	Permanent staff	Temporary Staff
Miracle	3	
Livingstonia	7	2
St John of God	8	2
Namitete	4	1
Soche	5	3
Lilongwe	6	2
Salima		12
Nasawa		4

It is recorded that Miracle Technical College has three permanent teachers; ranking the lowest, Namitete has four, Soche has five, Lilongwe has six, Livingstonia has seven, and St John's has eight ranking the highest. Some colleges employ temporally teachers who help in teaching fundamentals, and the distribution ranges from zero to twelve with Miracle being the lowest, Namitete has one, Lilongwe, Livingstonia, and St John's have two, Soche has three, Nasawa has four, and Salima has twelve recording the highest.

In comparing occupational and non occupational trainers, 80.65 percent of the verifiers think fundamentals are ably handled by occupational trainers. For those who think the opposite they point out that the occupational trainers did not go for training therefore their teaching of fundamentals concentrates on theory. The reasons given are that they lack the training and it is not their field therefore understanding of the materials is very low. Out of the 80.65 percent that think the occupational trainers ably handle the

fundamentals, 34.78 percent of the same thinks that non occupational trainers can also ably handle fundamentals. 13.04 percent thinks neither of the two groups ably handles the fundamentals. The latter group feels that the trainers lack knowledge of fundamentals which is coupled by lack of training.

93.37 percent of the trainees feel that the fundamentals are ably handled by occupational trainers, and 32 percent of the same sample feels that non occupational trainers ably handle the fundamentals-mutually exclusive analysis, not summative. It then follows that 30 percent of the sample is for either of the two. As stipulated by trainers, the trainees also, stipulates that the non - occupational trainers give irrelevant examples giving an example of Livingstonia Technical College where examples gyrate around engineering.

87.50 percent of the principals and their deputies feel that the fundamentals are ably handled by occupational trainers compared to non-occupational trainers. In line with the same they also feel the occupational trainers are committed to fundamentals.

The ten principals and deputy principals interviewed, indicates that the demonstration of skills stipulated in the fundamental modules by trainers, has shown that some are very competent, while some are fairly competent. 55.56 percent feels that the trainers are competent, 22.22 percent feels they are very competent, and the other 22.22 percent feels they are fairly competent.

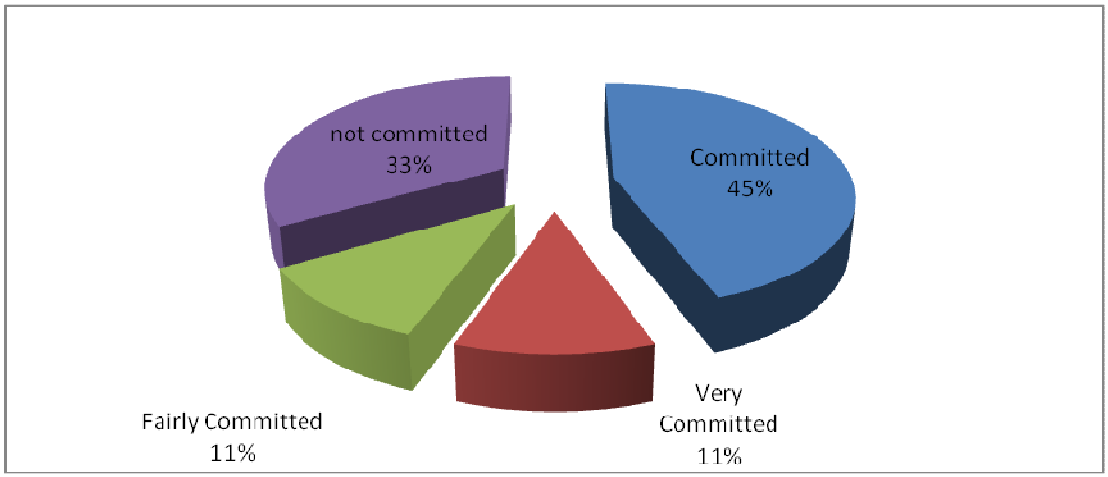
Table 4.2.3 Level of Trainers' Competence

	Percentage	**Cumulative**
Very competent	22.22%	22.22%
Competent	22.22%	44.44%
Fairly competent	55.56%	100%

In terms of their commitment to fundamentals, four feels they are committed, three states that they are very committed, one indicates fair commitment, the other three states

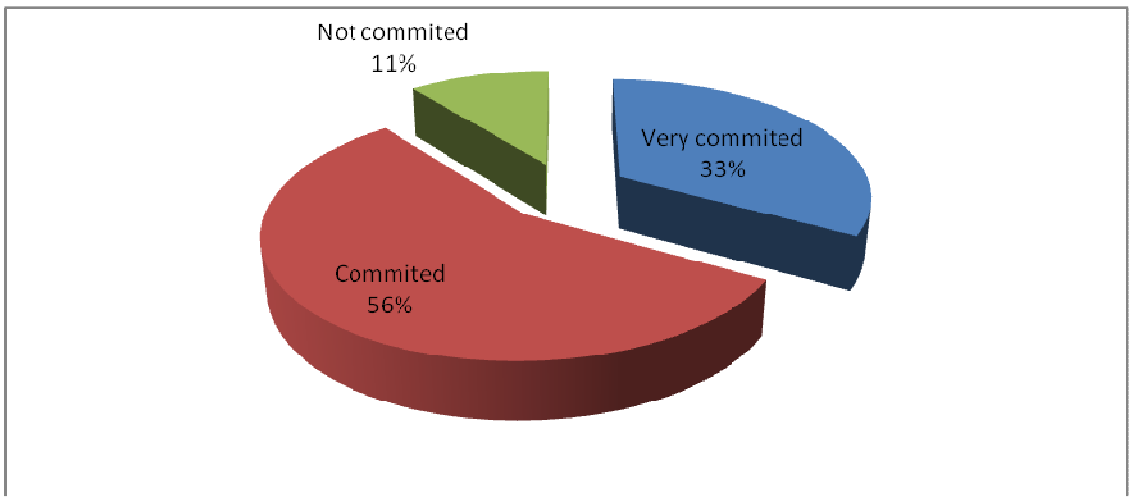
commitment, and one indicates that there is no commitment, indicating 44.44 percent, 33.33 percent, 11.11 percent and 11.11 percent of the sample respectively.

Chart 4.2.1 Trainers' commitment to fundamentals given by college management



Ranking the commitment of the, 56.15 percent of the trainees feel their trainers are committed, 33.16 percent indicates that their trainers are very committed to the fundamentals, and 10.7 percent feel they are not committed. 52.94 percent state that trainers are not often absent from classes, and 47.87 percent state that trainers are not often late for classes, while 27.13 percent state that trainers are never late for classes. In relation to the same 78.69 percent are satisfied with the competence of their trainers in fundamentals.

Chart 4.2.2 Trainers' commitment to fundamentals given by trainees



From the verifiers' competence point of view, 71.43 of the facilitators have confidence in their competence; while the 28.57 percent thinks that there competence is moderate. From the perspective of trainers, 18.64 percent of the trainers are over confident in the competence of verifiers, 55.93 percent of the trainers ranks them as moderate, and 25.42 feels they are not competent. The field reports written by research assistant reveals that there are some verifiers who are not competent to the point that they do not understand the fundamentals but they are used in verification. Secondly, there are some verifiers since there recruitment they have never been involved in verification.

Looking at modules, assessment checklist and verification forms, it has been seen that the verifiers have the instruments in stock at the following percentages 85.19, 92.86, 92.86 respectively. However it has been found that two do not have the modules and checklist, and one who does not have the verification forms also do not have the assessment checklist, and the two that do not have modules, do not have verification forms.

The facilitators have also viewed implementation of fundamentals with concern. It has been observed that there are several reasons hampering the effective implementation of the fundamentals. Among these reasons, is the attitude of teachers on fundamentals, which has been manifested in unwillingness to deliver the fundamentals, lack of in-depth training of instructors, and shortage of teaching and learning materials as already pointed out. The industry points out that the teaching of fundamental lacks practice such that the trainees are slow in building self confidence in their work.

4.2.3 Relevance

In considering the response of the fundamentals to the current labor market, 75 percent of the facilitators state that the fundamentals are not up to date per the requirement of today's labor market. Several reasons are pointed out as to why they are not up to date per the requirement of the labor market. One of the reasons is that the curriculum is much basic, modules especially science and numeracy are too shallow in content. Further to that they were developed sometime back such that with the changes that have taken place, the efficacy of the fundamentals has deteriorated. They further argue that

fundamental are short of crucial areas which the industry demands. In view of the same, 87.5 percent of the sample feels fundamentals are not meeting the original set purpose of enabling an easy knowledge transfer in the occupational courses.

From the trainees perspective the current fundamentals are up to date per the requirement of the labor market as indicated by 51.52 percent of the trainees, while the rest feels the opposite. The reasons given revolve around the issue of technology and human capacity. It is asserted that the fundamentals are based on obsolete technology and do not have computer and electronics technology as some of the essentials. Further to that, it has also been pointed out that the fundamentals do not help in development of the trainees thinking capability. A special mention is made of science and numeracy that they are too shallow than what the industry is expecting of them. It has further been stated that a review has not taken place for a long time, but the labor market has changed such that the current fundamental modules have not addressed those changes. They are still reflecting the old stuff. An example is given of gaps in communication. Communication is not only about letter writing and answering phones there is need to teach trainees different types of reporting like descriptive reporting. It is further argued that the fundamentals are too general that in the market there is no general business. Further to this there is need to incorporate the demands of the industry, and involve participants from all stakeholders in compiling the findings to check and verify if the concerns are fully addressed before releasing the reviewed fundamentals.

From the trainers' perspective, the relevance of fundamentals to occupations has generally been viewed positively at varying proportions. For 92.16 percent of the trainers think entrepreneurship is relevant to occupations, 91.53 percent think communication is relevant to occupations, 90.20 percent think occupation safety and healthy fundamentals are relevant to occupations, 71.93 think science is relevant to occupations, and 69.64 percent think numeracy is relevant to occupations. From general perspective 87.10 percent of the verifiers feel that the fundamentals are relevant to the occupations. Further to that, 94.64 percent of the trainers think that occupation safety and health is relevant both in school and out of school, for communication 93.55 percent, 92.59 percent for entrepreneurship, for science 88.33 percent, and for numeracy 87.93 percent. And from a

general perspective 90.32 percent of the verifiers think the fundamentals are relevant for the requirements of both in school and after school.

Table 4.2.4 Relevance of fundamentals from the trainers' perspective

	Relevance to occupation	**Relevance to life**
Entrepreneurship	92.16%	92.59%
Communication	91.53%	93.55%
OSH	90.20%	94.64%
Science	71.93%	88.33%
Numeracy	69.64%	87.93%

Relating to the same, according to the trainees, 99.21 percent have found communication helpful in their life, 97.58 percent occupation safety and health, followed by 96.77 percent on entrepreneurship, then science at 93.6 percent, finishing with numeracy at 92 percent.

Considering relevance of knowledge and skills in the fundamental modules, according to 69.7 percent of the trainers the knowledge and skills stipulated in the fundamental modules are relevant, 25.76 percent says they are very relevant, while 4.55 percent feels they are not relevant. In demonstration of these skills by the trainees, 59.09 percent feels they are competent while 28.75 percent feels they are very competent and 7.58 percent feels they are not competent, and 4.55 percent are indifferent. However according to the industry, the fundamentals modules of science are not enough they need developing.

Out of the industry sample of thirty one, only thirteen people responded on the relevance of the skills stipulated in the fundamentals modules, indicating 42 percent of the sample, and it is on this percentage that the analysis was done. The low response can be attributed to the fact that many have never been inducted on CBET hence they could not comment, and secondly because they never passed through the CBET curriculum rendering them

not capable of contributing on the relevance of fundamentals. Further analysis shows that 66.67 percent of the supervisors do not have knowledge of the fundamentals. From those who responded, it has been found that 46.15 percent thinks that the stipulated skills are very relevant, and 53.85 percent thinks the skills in fundamentals modules are relevant, indicating zero percentage on those who deem them as not relevant.

The industry's comment on the relevance of fundamentals was from the practicing approach. The crucial aspect that fundamentals aid is the facilitation of skills acquisition in their particular occupations, and this is shown during trainees' attachment with the industry. As far as trainees ability to understand given tasks is concerned, the industry unanimously agree that the trainees are able to understand the given tasks i.e. hundred percent of the sample. 96.55 percent comments that the fundamentals are assisting the trainees to be effective in their operations.

From the verifiers assessment of fundamentals, 12.5 percent of the verifiers feel the trainees are very competent in demonstrating skills stipulated in the fundamental modules, while 78.13 percent states that the student are competent, and 9.38 feels the trainees are not competent. In addition, 96.77 percent feels the fundamentals add value to acquisition of skills. However, 39.29 percent laments that the fundamentals are not adequate for trainees to master competence.

As to whether these fundamentals have helped the trainees in acquisition of skills, 98.4 percent of the trainees appreciate the role that the fundamentals have played in their acquisition of skills. In summary it has been stipulated that entrepreneurship has equipped them with ability to calculate and cope up with challenges, running a business, and ability to focus on the future and plan well. Numeracy has enabled them to carry out measurements in volume, capacity, and mass. Occupation safety and health has enabled them to appreciate safety measures, acquired HIV/AIDS information and ability to know how to work safely with all equipment without injuries or destroying the equipment. Science has enabled them to know a specific level age required such as panel and opposition, calculations, appreciating dangers of touching adheres with bear hands, appreciating behavior of materials and choosing the right tools and equipment for a

particular given task. Lastly communication has helped them to communicate well and effectively.

Further to the aiding in acquisition of skills, from the trainees own perspective during their attachments, 45.90 percent found the occupation safety and health fundamentals very relevant, 45.08 percent relevant, cumulatively 90.98 percent, the rest did not find them relevant. For numeracy, 30.89 percent found them very relevant, 53.66 percent relevant, cumulatively 84.55 percent, and the rest did not find them relevant. For science, 28.69 percent found them very relevant, 50 percent found them relevant, cumulatively 78.69 percent, while the rest found them not relevant. For entrepreneurship, 33.06 percent found them very relevant during their attachment, 41.94 found them relevant, cumulatively 75 percent, and the rest did not find them relevant. For communication 60.32 percent found them very relevant, 36.51 percent relevant, indicating a cumulative percentage of 96.83 percent, which is so far the highest.

Further analysis on whether fundamentals are relevant to requirements of both in school and out of school, 98.92 percent feel that communication fundamentals are relevant, 98.9 percent feel that occupation safety and health fundamentals are relevant, 96.17 percent feel that entrepreneurship fundamentals are relevant, 95.60 percent feel numeracy fundamentals are relevant, and 95.51 percent feel that science fundamentals are relevant.

Table 4.2.5 Relevance of fundamentals from the trainees' perspective

	Relevance during attachment	**Relevance to life**
Entrepreneurship	75%	96.17%
Communication	96.83%	98.92%
OSH	90.98%	98.9%
Science	78.69%	95.51%
Numeracy	84.55%	95.60%

A comparative analysis of graduates and trainees indicates that 100 percent of the graduates against 99 percent of the trainees interviewed subscribe to the relevance of communication and occupation safety and health to both in school and out of school. 100 percent of graduates against 96 percent of trainees interviewed subscribe to the relevance of entrepreneurship. For science it is 100 percent against 96 percent. Lastly for numeracy it is 100 percent against 95 percent. The continued 100 percent for the graduates is attributed to low graduate representation of 0.05 percent in the sample.

4.2.3.1 Biasedness of fundamentals

The relevance of skills stipulated in the fundamental modules to their specific occupations has also been appreciated at varying degrees by the trainees. 66.67 percent thinks the occupation safety and health fundamentals are very relevant, 30.56 percent thinks they are relevant, giving a cumulative percentage of 97.22, with a larger percentage of 15.56 percent coming from carpentry. However percentage comparison among occupations indicates that general fitting benefits a lot from occupation safety and health rated at 79 percent.

In terms of communication fundamentals 56.76 percent of the trainees state that they are very relevant, 40 percent relevant, indicating a cumulative percentage of 96.76 percent, with a larger percentage of 15 percent coming from carpentry. However the comparison among occupations shows that plumbing's score is higher, at 80 percent. Indicating 80 percent of people in plumbing found them very relevant.

For numeracy 45.36 percent found the fundamentals to be very relevant, 46.99 percent found them relevant, indicating a cumulative percentage of 92.35, with carpentry still contributing a larger percentage of 16 percent. Comparison of occupations shows that wood work's score is higher at 67 percent, indicating that the fundamentals are better for wood work.

For science fundamentals 58.66 found them to be very relevant and 36.87 percent relevant, giving a cumulative percentage of 95.53 percent. The biasedness is still in carpentry with 18 percent; however the score is higher in wood work at 100 percent.

Lastly entrepreneurship fundamentals 58.7 percent found them very relevant, and 36.41 found them relevant, indicating a 95.11 cumulative percentage. The biasedness continues to be in carpentry at 20 percent, as the case with latter analysis, the score is higher in vehicle body repairing at 100 percent.

As stated on characteristics of the trainees' sample, and shown in Table 4.1.3 the biasedness towards carpentry and joinery is an inbuilt sample bias where 28.42 percent of the trainees came from the occupation, seconded by automobile which is almost half of carpentry and joinery.

Table 4.2.6 Biasedness of Fundamentals to occupations

	Absolute	**Comparative**
Entrepreneurship	Carpentry and joinery	Vehicle body repair
Communication	Carpentry and joinery	Plumbing
OSH	Carpentry and joinery	General fitting
Science	Carpentry and joinery	Wood works
Numeracy	Carpentry and joinery	Wood works

According to self performance rating giving in highest percentage, it shows that 100 percent of trainees in refrigeration and air conditioning rate themselves excellent in science, and 75 percent of the same rate themselves to be excellent in entrepreneurship. 100 percent of wood work trainees rate themselves to be excellent in numeracy. 85 percent of printing trainees rate themselves excellent in occupation safety and health, and 100 percent of wood work student rate themselves excellent in communication.

From the trainers' perspective in terms of student performance in fundamentals, 52.08 percent feels they are good, 43.75 percent feels they are moderate, and 4.17 percent feels it is bad.

From the perspective of trainees, 70.97 percent of the trainers feel that the fundamentals are demanding a simple memory. In terms of acquisition of skills and response to acquisition of knowledge by trainees, 50 percent indicates that it is good, and 46.88 percent indicates that it is fair. 95.45 percent of the trainers recognize the importance of fundamental in adding value to acquisition of skills. However there is small parity in whether the fundamentals are adequate with 50.77 percent saying they are adequate and 49.23 percent saying they are not adequate. From a general perspective 99.47 percent of the trainees find the fundamentals relevant to their occupations.

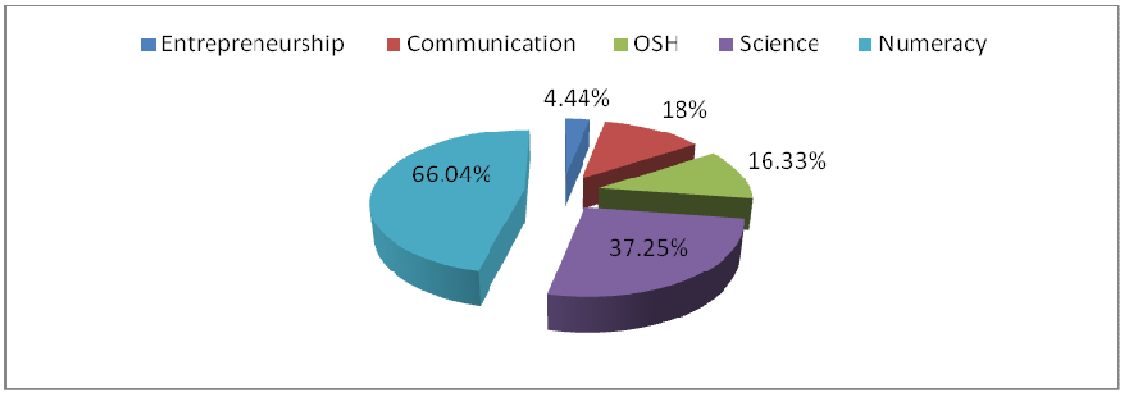
4.2.3.2 Status of fundamentals

One of the major calls for the evaluation of fundamentals was the status of the fundamentals as to whether they are advanced or shallow. The outcome of the evaluation has shown that the degree of fundamentals is at different levels vis-à-vis users.

According to trainers for numeracy, 66.04 percent of trainers feel it is shallow, 30.19 percent moderate and 3.77 percent advanced. For science, 37.25 percent of trainers feel it is shallow, 60.78 percent moderate, and 1.96 advanced. For communication, 18 percent of trainers feel it is shallow, 72 percent moderate and 10 percent advanced. For occupation safety and health, 16.33 percent of trainers feel it is shallow, 77.55 percent moderate and 6.12 percent advanced. For entrepreneurship, 4.44 of trainer feels it is shallow, 80 percent feels it is moderate, 15.56 advanced.

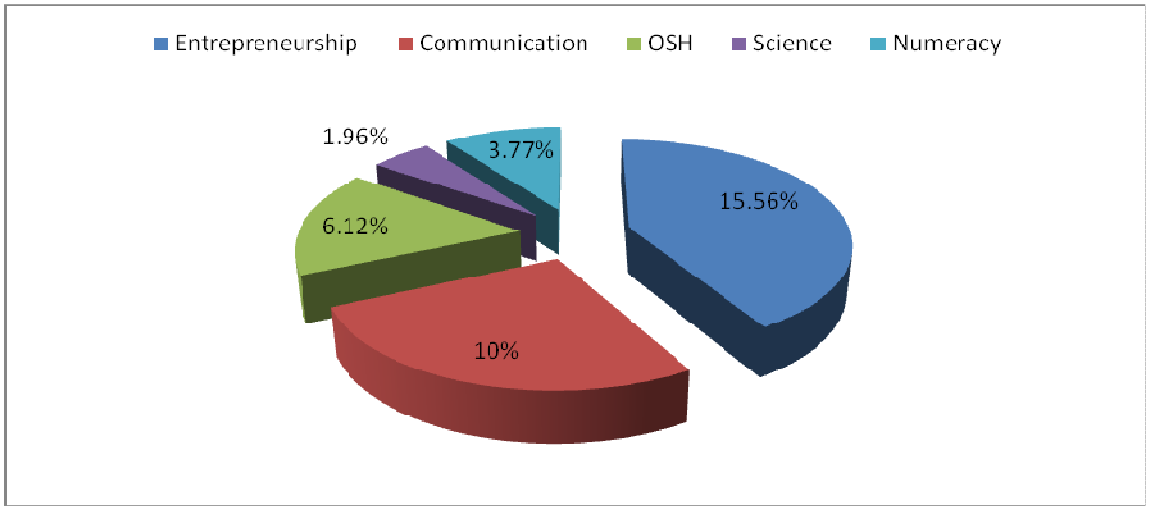
It has to be noted that charts below are being presented per category in comparative analysis; the summation will be over or less than 100%. However taking each fundamental in the charts will add up to 100%

Chart 4.2.3 Shallowness ranking of fundamentals- trainers



Commenting on the shallowness of numeracy, the industry states that numeracy is indeed shallow; it contains topics that are for O-level.

Chart 4.2.4 Advance ranking of fundamentals- trainers



The trainees state that the fundamentals are shallow to address the needs of the occupations. A special mention is made of numeracy. The trainees state that numeracy covers secondary school stuff which is not useful in colleges. Though some trainees point out that entrepreneurship is shallow, a majority as also the case with trainers state that entrepreneurship is complicated such that it is not easily understood. They further observe that in some areas of their training, they cover advanced materials at a lower lever. They further state that the fundamentals are too general to the extent that they do not address their occupations as are supposed to be. In addition to the general approach,

they point out that the content of the fundamentals is mixed up, such that advanced material can be got at the beginning and basics in the middle or at the end.

Analysis shows that 68 percent of the trainees feel communication is advanced, 59 percent- entrepreneurship, 50 percent- occupation safety and health, 40 percent- science, and 23 percent- numeracy. In terms of shallowness of the fundamentals 15.38 percent, 21.31 percent, 17.13 percent, 21.23 percent, and 44.57 percent respectively. To strengthen the argument it has been pointed out that the shallowness of numeracy is a matter of great concern. An example is given where trainees are asked to write 500 in worlds.

Chart 4.2,5 Shallowness ranking- trainees

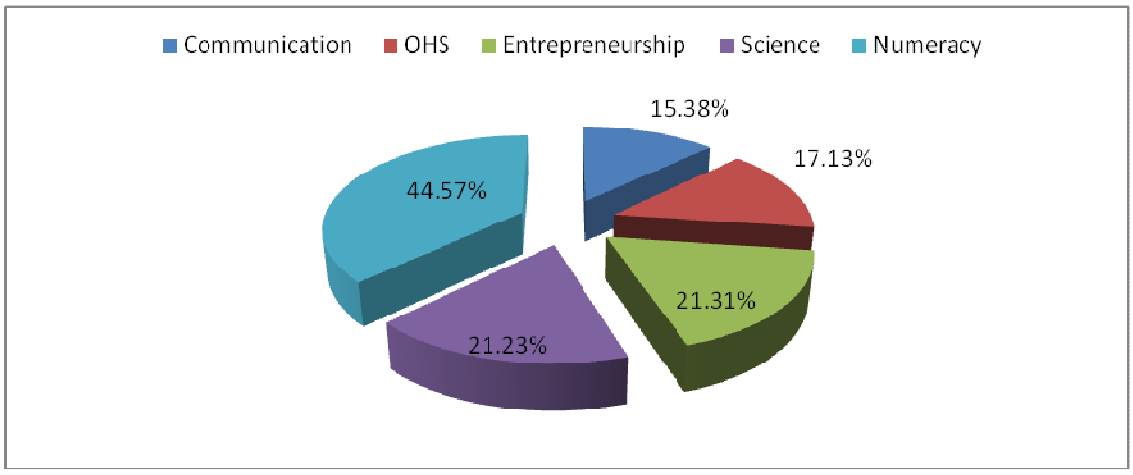
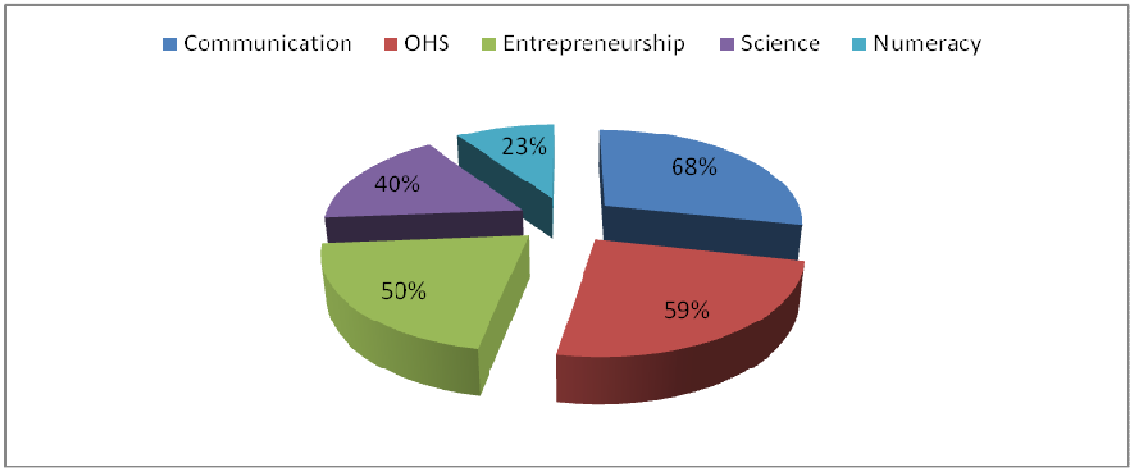


Chart 4.2,6 Advance ranking- trainees



For fundamentals that have to be developed, according to rating, numeracy rates number one with 32.1 percent, seconded by entrepreneurship 13.7 percent, science 13.2 percent, communication 9.5 percent, lastly occupation safety and health 2.1 percent. This does not conflict the fundamental rating shown above. However this rating is to balance the shallow and advance aspect of the fundamentals.

Table 4.2.6 Development of fundamentals

Fundamental	Percentage
Numeracy	32.1%
Entrepreneurship	13.7%
Science	13.2%
Communication	9.5%
OSH	2.1%

4.3 Views raised on fundamentals

The verifiers point out that the following are views expressed by trainers on fundamentals;

Technical

1. Fundamentals being too shallow in their content rendering them not relevant to a particular occupation.
2. The Occupation Safety and healthy (OSH) measures covered in the fundamentals do not necessarily cover what is needed in the construction of other structures.
3. In OSH some trainers find hard to deliver sensitive issues more especially in HIV/AIDS in a class of male and female trainees.
4. Some relevant topics are not in the modules so it is a bit complicated.
5. Modules need to be revised to meet the demand of the industry.

6. Trainers are pined at a corner because of the learning out comes hence they just follow that without adding more.
7. Some modules are not complete.
8. The fundamentals have been developed without consulting them.

Institutional

1. Lack of Resources. The learning outcomes demand specific equipment which is not available in colleges. There is also lack of supplies in the assessment tools, checklist and modules.
2. Lack of skills on trainers. Due to changes in the fundamentals, there is a need for orientation for the trainers and module review. The need for re-fresher courses has also been pointed out.
3. The work is too much, such that they are over burdened.
4. Trainers feel they are just wasting their time with fundamentals.
5. Most trainers don't stay long because they look for other job resulting to lack of enough teachers.
6. The supervisors don't help them in the industry.

The verifiers further pointed out that trainees raised issues with regard to:

Technical

1. Fundamentals being too shallow comparing to their levels. An example is given of numeracy i.e. adding, multiplying, dividing and subtracting whole numbers. It is further stated that there is lack of competency from the trainees when they are in the industry due to the content of the fundamentals because material in the industry is advanced.
2. Trainees complain about fundamentals that are not relevant to their occupation.
3. Trainees look at fundamentals like artificial subjects, hence lack dedication.
4. Trainees complain on lessons which are new to them that they did not come across at secondary schools.
5. Not being exposed to computers.

6. Fundamentals take long time to finish making trainees unable to complete their course.

Institutional

1. Lack of equipments. These being manifested in inability for the management to give out necessary resources i.e. handouts after every course topic and laboratories/ workshops. Secondly the equipment that is in the colleges is obsolete compared to advance technology in industries.
2. Lack of teachers. This is manifested in delay in finishing the modules, in some cases even not learning the fundamentals.
3. Complained that some trainers are not committed to fundamentals.
4. Lack of well experienced trainers, resulting to poor delivery of materials.
5. Since teachers have got a bad attitude towards fundamentals, the trainees develop the bad attitude as well.
6. Not being visited by trainers when they are attached leaves trainees in suspense.

Accordingly to the trainees, view fundamentals as follows;

Technical

1. Status of fundamentals like numeracy being shallow, and entrepreneurship being advanced.
2. Entrepreneurship needs well qualified trainers.
3. Fundamentals delay the student because the students are supposed to repeat if they have failed.
4. The fundamentals are not useful to the trainees.
5. The fundamentals are general and not in line with a specific occupation.
6. Period for the entire course- it is too long for the materials that can only take two years.

Institutional

1. Lack of practical work due to in-availability of working materials.
2. Lack of teaching materials.

3. They have more work. There is dual responsibility of being trainers and assessors.
4. Lack of training on CBET.
5. Lack of refresher courses that would improve their knowledge.
6. Not being consulted when developing the modules.
7. External verifiers do not come to correct the assessments.
8. The slowness in awarding certificates to trainees.
7. They are not paid for teaching fundamentals.
8. Late coming of student when the school has commenced.
9. Lack of update from TEVETA.

4.4 Changes in the fundamentals

In terms of the changes that can be there in the fundamentals, 87.5 percent of the facilitators feel that there is no need to remove anything from the fundamentals. The rest states the removal of technical drawing from some occupations. In terms of additions, it was felt that subjects have to be added in the hospitality sector like French, introduce electronics principals and Information Technology (IT) fundamentals. The general comment from facilitators is that the fundamentals have to be occupational specific. The same view is shared by 68.93 percent of those in the industry and institutions. Further analysis indicates that 68.09 percent of the trainees feel that the fundamentals delivery should be per their occupation i.e. occupational specific.

4.4.1 Numeracy

A special focus on numeracy reveals that a lot of things were left out of the fundamentals such that students being trained based on CBET cannot be compared to those of city and guilds; a special note has been made of level 3. Further to that, an example is given of formula transposition that is in level three which was supposed to be in level one. It is further pointed out that the CBET numeracy is of secondary school level. According to the trainers, the material is shallow and the arrangement in the modes was not done appropriately. It has also been pointed out that some are not relevant to some occupations like welding and printing.

It has further been pointed out that in electrical installation, the fundamentals should go deeper than what they are now, however no detailed depth was given. In welding and fabrication, there has to an addition of trigonometry.

Given a chance to participate in the curriculum evaluation the respondents would have removed the following from the fundamentals;

1. "Performing Basic Numerical Calculations" and subject of the formula should be removed because it is too shallow. The addition, subtraction, and how to use a calculator. In level one remove most level one topic in numeracy that are not technical in nature.

For additions in numeracy, the following were suggested**;**

1. Finding areas of irregular figures.
2. Topics which would touch on printing arithmetic.
3. Should add some advanced content to the level of college trainees.
4. Should target on angels areas of circle science (test) to produce required results.
5. Add coordinates in geometry.
6. It should be reviewed so that it is broader and calculus may be included.
7. Widen accounting.
8. Revise them to suit occupations. Like in printing more emphasis should be put on measurements from printing point of view. Put topics which would be advanced on the weight of paper and examples should relate to that.
9. Must be developed to match with the labor requirement.

4.4.2 Entrepreneurship

From a general perspective marketing should be improved, things concerning policy should be added, principals of law for trainees to know legal aspect of business in the country,

It has also been suggested that the first learning outcome should have an element of entrepreneurship not just how to start a business.

The following have to be added in entrepreneurship;

1. Administration and management should be included.
2. Add a topic on how to delegate business work.
3. Management skills should be incorporated with emphasis in computing.
4. Add topics like business plan, marketing, and how to access the loans.
5. Should include procurement skills.
6. Add topics which touch on HIV.
7. Modules like principal and practice of management. Topics like soles and selling management should be incorporated.
8. Add business skills and office skills because they go in line with what is being taught in occupations.

9. The introduction of procurement topics in the fundamentals would help in costing and estimation, and cash flow.
10. Review the modern presentation of the balance sheet according to International Accounting Standard Board (IASB).
11. Attitude of productivity.
12. Positive social image.
13. There is need to add intellectual capabilities/ development and decision making fields not only living based on what they have been told.
14. It has to be developed in order to meet the needs of the market. It is mostly done in theory, it is important to add the practical aspect to appreciate how the market operates. The fundamental should be able to equip the trainees to make products for sale while in school.
15. More time should be given to the fundamental.
16. There should be introduction of motivation and passion of contents which the trainees have to undertake.
17. It should be wider, more topics which are well researched as regards to running of business.
18. It should be learnt in level 3, (hinging on the current advance fundamentals).
19. It should be reviewed so that it is easily understood when learning.
20. Topics included should focus on a specific occupation.

4.4.3 Communication

In general fitting there is a need to improve communication by adding computer lessons and to deepen the technical drawing. In automobile, there is need to add computer lessons. In vehicle body repair there is need for information technology. For carpentry and joinery, computer skills should be included to facilitate designing in drawing, and roof geometry should also be included. Though there has been a special mention of these occupations as far as computing is concerned, it still remains vital to introduce it in all occupations.

In tourism there is need to add French language. In computer, there is need for social skills which includes positive attitude towards work, and there should be an addition of writing skills which should include advanced grammar.

It was also pointed out that there should also be good sequence of modules, and communication (No. 1) written communication should be split. It further pointed out that modules address same issues.

Given a chance to participate in the curriculum evaluation the respondents would have removed the following from the fundamentals;

1. Communication- debates are not relevant in bricklaying.
2. Drawing modules 1 in level 2 can be removed because its repetition.
3. Orthographic should not come in early stages of the module.
4. Outdated topics which have nothing substantial to the present technology.

If they were allowed to add, the following would be added;

1. There is need to add information technology, computers and electronic skills, which should start at level one, and the content should marry with the occupation.
2. Include all methods of formal letter writing.
3. Practical grammar, writing skills, and reports, with a bias in technical language.
4. Oral presentation/public speaking.
5. Add Technical drawing and report writing relevant to occupations.
6. In technical drawing, add more learning outcomes.
7. More emphasis should be put on electrical circuit drawing in electrical installation and automobile different types of gears.
8. In technical drawing add studio work in printing.
9. In technical drawing there must be use of Auto Card.
10. In technical drawing, Isometric - Orthographic - views of drawings.
11. Specifying fundamentals for graphics to suit the particular occupation.
12. Technical drawings should address different structures and roof levels.
13. Technical Drawing-every engineering field needs illustrations and should be practical.

14. In technical drawing, addition of sketches and drawings for easy understanding.
15. Technical drawing should stand as an independent fundamental and be technical in nature. The range is so broad. Lever I should be general and lever II occupational specific. Learning outcomes should also be broken down.
16. Lastly should address the demand of the labor market.

4.4.4 Occupation Safety and Health (OHS)

In tourism there is need to add fire fighting and first aid. In automobile add safety and precaution within the workshop. From the general perspective, add topics like how to cope up with stress, and environmental protection.

The respondents proposed that occupation safety and health should be shifted to fall under occupational. The argument is that fundamentals should address occupational needs for example OSH talk of goggles, an aspect not applicable to printing.

Given a chance to add something, the following could have been added to OSH;

1. Add on the safety measures not only for the person but also for the work place or on the products they are producing.
2. Include safety in handling big machines.
3. Nutrition and healthy o fundamentals in tourism.
4. Basics of food production should be made as a fundamental for food production trainees.
5. Should include practical aspects of the subject for easy understanding.
6. Include HIV and AIDS, and Sexually Transmitted Diseases - a study in HIV/AIDS awareness.
7. Must address each occupation separately.

4.4.5 Science

To make the fundamentals more relevant to occupations, the following have been suggested; in printing, there is need to improve the science to better suit the occupation. In bricklaying, what is needed is only revision of content of the fundamentals, and

addition of science laboratory. In automobile and carpentry there is need to add a subject that can look into environmental protection and there is need to provide for science that will address the requirements in the occupation. Further in automobile, electronics should be added to address the modern vehicles which are up to date than the syllabus. Furthermore, there is need to introduce information technology courses within the fundamental. In tourism there is need to add food theory. In welding and fabrication, add knowledge of properties of steal and metals. In electrical installation add computer science/electronics similar to those that are in city and guilds and offered by the polytechnic.

It was suggested to remove outdated topics which have nothing substantial to the present technology.

On things to add, the following were suggested;

1. Environmental management and Disposal.
2. It should emphasize more on print-shop.
3. Paper making and color separation.
4. Add material science in which topics to touch on paper and developers.
5. Include seasoning of timber, calculation of material values in a building, electric appliance corrosion, and dampness in buildings.
6. As regards to painting include topics which will emphasize more on spray painting.
7. Add mixing of paint.
8. CTC Milling and chasing should be included in general fitting, pulleys, pumps, and funds conveyors should be incorporated in syllabus.
9. Include factory electronics i.e. instrumentation, and motor rewinding.
10. Electronics and I.C.T technology currently being used on the market with typical examples applicable in the world.
11. Add topics that are service related, like fuels and combustion, gas laws, and engine testing.
12. Bonding, adhesives, plastics and assembly drawing should be advanced.
13. Use of equipment - measuring tools - calipers – micrometer.

14. Cladding maintenance should be added as topics.
15. Would add more substance as regards to pastry section which is not enough.
16. Auto car should also be included in higher levels.
17. Add more science related to automobile mechanics.
18. Should be applied science with bias on the practical aspect and demonstration by teachers.
19. Must suit every occupation. If its food production, examples must be derived from food production not engineering.
20. Include engineering concepts.

4.5 General Issues

As to whether the fundamentals are covered in right time, 63.41 percent of those in institutions and at the industry feel that the fundamentals are covered in right time. For those who feel that the modules are not covered in right time, they suggest that, there is need for adequate members of staff, training the staff that is available, specialization-train people who would teach fundamentals only and not committed to other courses, non-occupational trainers should not be playing a big role in teaching fundamentals, the load should be spread evenly and the modules must come at a right time, the content should be covered in a term at all levels, cover theory and practical before going to the industries, there should be consultation between TEVETA and trainers before trainees are taken for attachment to make sure that they have finished their modules and for smooth attachment management, harmonization of calendar and timetable for all technical colleges, trainees should be at college for the whole year or two for them to cover the required module before going for attachments, provision of enough equipment. It is further suggested that fundamentals should be covered prior to the module that will be based on the fundamental, late admission of student in technical college should be minimized, second selection is bringing more problems for trainers to bring first and second intake trainees at par, hence delaying work, and there is need to review the curriculum so that time is not wasted on irrelevant areas/stuff. TEVETA visits to institution should be increased, the funding be given at the right time, and lastly ensure that there is coordination between the industries and institutions.

They further recommend that, the content should go deep and there has to be smooth transition between secondary and college materials. It is also suggested that level 1 & 2 module should be combined because what is covered can be done in one year (however no specific fundamental was given). They also suggest that fundamentals should follow a brainstorming mode of teaching to encourage independent thinking among trainees, there should be encouragement of peer learning technique by pairing of trainees, there must be proper allocation of hours to the fundamentals, and lastly splitting the fundamental into occupations as earlier stated.

The trainees also noted that presentation of the fundamentals is problematic. They point out that the presentation was to cater for both Junior Certificate (JC) and Malawi School Certificate of Education (MSCE) holders. However, there should be a difference as at what level an MSCE holder would start as compared to a JC holder.

They also point out that the mode of assessment discourages the trainees from working hard. Emphasis is on achieving not knowing and mastering the stipulated skills. Time for the trainers is spent on teaching those who have failed in order for them to pass, such that the trainers are overloaded, and consequently resulting to high absenteeism by trainers. It has further resulted to hiring trainers to teach fundamentals and also trainees taking longer in finishing the course. They state that the system should be changed; those who have passed should move on to another level and leave behind those who have failed. In their own perspective, the trainees state that CBET encourages laziness.

The industry and institutions in reacting to the same they suggest a revision in the mode of assessment because somebody cannot manage to get 100%. The trainees therefore suggest a change in mode of assessment. They state that the passing rate should not be 100 percent, but from 50 percent.

Looking at fundamental assessments and repeating of fundamental tests, 95.05 percent of the trainees, report writing assessments in entrepreneurship fundamentals and 95 percent report repeating tests if they have failed. For numeracy 97.27 percent report writing assessments and 95 percent report repeating assessments in case they have failed. For science, 96.67 percent report writing assessments and 96.11 percent report repeating assessments if failed. In occupation safety and health, 93.85 percent report writing assessments and 91.91 percent report repeating assessments if they have failed. In communication, 92.82 percent report writing assessments and 92.74 percent report repeating assessments if they have failed. And in terms of frequency of writing, 56.76 percent of the sample report writing the assessments very often.

There is lack of experienced and well trained teachers. Most teachers have not been trained on how to deliver fundamentals. They further point out that there are cases when

an entrepreneurship teacher has little knowledge of entrepreneurship as a fundamental. Coupled with the same is that the trainers are overloaded, such that there is no commitment and willingness from trainers on fundamentals. Sometimes there are external trainers contracted to teach fundamentals which worsens the situation because they don't know the content of the occupations.

Another concern is on time. Some trainees point out that the modules are so short for the long period of time that is stipulated for the fundamental modules. However some trainees have complained that learning period is not enough such that unlearnt material leads to misunderstanding when they have gone out for their attachments. It was further revealed that the complaint applies to levels I and II modules. Those who are complaining on time further points out that they are sent for attachments before covering some fundamentals. Coupled with the same is that the fundamentals are not up to date per the requirement of the labor market hence they meet a different setting than the ideal picture that the classroom paints in them.

Another aspect of concern is that of lack of resources for both practicals and theory. The modules are meant for theory and practice to complement, however the practicing materials are not available in the schools. The inclusion of topics in the curriculum that require theory and practical was also not to be a problem with the presence of the industry. However with the multiple attachment necessity, it is not practical in cases where mostly there a few companies that has the equipment for practicals. An example is given of molding. Secondly, delivery of occupational trainers is for them to compliment with research but shortage of books in library makes it difficult.

The trainees also points out that, there is lack of training guides. Well developed training guides should be given to trainees for easy study plan. The absence of the guide has also contributed to their not appreciating the depth of the fundamentals and ability to follow whether the content being taught is in line with what they are supposed to learn.
There is lack of attachment. They suggest that attachments should be well organized before close of term. On top of this there is slow response on external verification. In other cases the absence of verifiers during attachment is felt.

The trainees also feel that TEVETA has a lot on its head such that the trainees are not much attended to in terms of their needs i.e. it is overburdened. Such that there is no visit by TEVETA officials to monitor progress and there is no feedback when there are concerns. They further point out that CBET program is not well defined making their view of carrier progression difficult. They seem to be groping in the darkness because they have never seen any graduate holding a TEVETA certificate. Further to that they state that there is no certification on fundamentals.

Further to the additions above, the following were suggested;

1. Book keeping.
2. Electrical sciences.
3. Construction technology.
4. Stair case construction.
5. Blundering construction.
6. Roof construction basing on the current market
7. Cladding in bricklaying.

5.0 OBSERVATIONS AND RECOMMENDATIONS

The section provides information regarding the observations of the study and the recommendations in order to address the problems that the current curriculum fundamentals have.

5.1 Observations

1. TEVETA and the institutions hold different views as far as the context of fundamentals is concerned. The view of the former is that of subjects that should equip the trainees with knowledge to apply to various fields. However as the levels are going up the importance of the fundamentals in this mode declines, which is the cause of dissatisfaction to the trainers. While the latter view them as independent subjects.
2. The fundamentals are biased towards carpentry and bricklaying, the occupations in which they were piloted.
3. The standard of the fundamentals is appropriate for those who are J.C. holders.
4. There is no clear guidance as to when and for how long should trainees be out for attachments and for how long are they supposed to be in school and when. Without a guide of time the approach will be haphazard leading to system decay or collapse in the long run.

5.2 Recommendations

1. There is need to consider the rearrangement of the topics in the modules.
2. The standard of fundamentals should no longer be based on J.C. but M.S.C.E as shown by over 95 percent of those who are using the fundamentals. However it has to be a transition from where they stopped in secondary curriculum.
3. The fundamentals have to be occupation specific with exception of entrepreneurship and communication. Two options that are there are;
    a. Having basics which cut across occupations being delivered in generic mode and give more time to advanced materials which should be delivered in occupational specific mode.
    b. Going flat out occupational specific.
4. The teaching of fundamentals should have a practical bias.

5. The development of the new curriculum should involve the users of the curriculum, and the end users of the product which is the industry. The industry should state the needs in the curriculum and the institutions should guide how best can the needs be met.
6. There is need to train the trainers soon after the development of the new curriculum before its implementation.
7. Appreciating the fact that the CBET curriculum is flexible, still there should be a deliberate effort to harmonize the calendar and make sure that the calendar is static.
8. TEVETA should devolve some of its functions especially those to do with attachments.

6.0 AREAS FOR FURTHER STUDY

1. Priority should be given to the evaluation of the CBET.
2. There is need for needs analysis and a study on the efficacy of the colleges in handling the attachments.

Reference

Chandidya R. *Competence Based Education and Training.* A presentation at Mzuzu Technical College

Chikaonda M., RBM *An email/ telephone conversation*

Chingeni M. *et.al. Draft paper on Skills survey*

GoM. (1999). *Technical Entrepreneurial and Vocation Education and Training Act.* Alpha. LL

GoM. *Vision 2020 initial Concept*

GoM. (2004). *Economic Report*

GoM. (2006). *Malawi Economic Growth and Development Strategy*

MLVT. (1998). *Technical Entrepreneurial and Vocation Education and Training Policy*

NSO. (2005). *Integrated Household Survey Report.* Zomba

NSO. (2006).*Integrated Household Survey data*

TEVET. (2002)

TEVETA. (2007). *New Strategic Plan (2007- 2012).*

www.tevetamw.com

Appendix I

The sample had four stratum; Institutions, Industry, Facilitators, and Others. From these the following targets were established.

1. **Institutions (those offering CBET)**
    a. Public institutions
        i. Trainers
            1. Assessors
            2. Internal verifiers
            3. External Verifiers
        ii. Management
            1. Principals
            2. Deputy principals
            3. Head of departments
            4. Head of sections
        iii. Trainees
            1. Pre-apprentices
            2. Apprentices divided
                a. No attachment
                b. First attachment
                c. Second attachment
                d. Third attachment

    b. Private institutions
        i. Trainers
            1. Assessors
            2. Internal verifiers
            3. External Verifiers
        ii. Management
            1. Principals

2. Deputy principals
3. Head of departments
4. Head of sections

iii. Trainees

1. Pre-apprentices
2. Apprentices divided
    a. No attachment
    b. First attachment

2. Industry

a. Public

i. Departments

1. Service departments
2. Production departments

ii. Sub vented organizations (parastatals)

b. Private

i. Printing (Printers)

1. Supervisor
2. Assessor
3. External Verifier
4. Graduate trainee

ii. Construction (Contractors)

1. Supervisor
2. Assessor
3. External Verifier
4. Graduate trainee

iii. Tourism (Hotels + related providers)

1. Supervisor
2. Assessor
3. External Verifier
4. Graduate trainee

iv. Transport (Garages)

1. Supervisor
2. Assessor
3. External Verifier
4. Graduate trainee

v. Textile (Garment manufacturers)
   1. Supervisor
   2. Assessor
   3. External Verifier
   4. Graduate trainee

vi. Engineering (Production industries)
   1. Supervisor
   2. Assessor
   3. External Verifier
   4. Graduate trainee

vii. Water (Water board)
   1. Supervisor
   2. Assessor
   3. External Verifier
   4. Graduate trainee

3. Facilitators

a. Ministry of Education
   i. Director of Technical and Vocational Training
   ii. EMAS- Technical

b. Master trainers
   i. DACUM
   ii. Assessors
   iii. CBET

4. Others

a. Zone managers for World Vision International, PLAN, AFRICARE, and UNICEF.

b. Program coordinators for funding agencies.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