

Expansion Policy of Secondary Technical Education as A Correlate to the Acquisition of Basic Technical Skills by Students in Cameroon

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Abstract

This study aims at investigating the relationship between the expansion of secondary Technical Education on the acquisition of technical skills by students. Technical Vocational Education and Training (TVET) has been expanding quantitatively yearly without paying enough attention to its adverse effect on quality and the acquisition of the essential practical skills required by students in Cameroon. This study was guided by three research questions and hypotheses. The sample was 40 Secondary technical colleges and 20 High schools spread in the Center, Extreme North, Littoral, North West and South West Regions of Cameroon. This included 60 Regional Pedagogic Inspectors, 60 Principals and 300 Teachers in the sector who were retained through a simple random sampling technique. Each grouping filled a structured questionnaire that was designed based on a 4-point Rikert Scale for data collection. The data was analysed using the Pearson's Product Moment Correlation Coefficient. The findings revealed that: the expansion policy of technical education has significant implications on the attainment of the fundamental objectives of this type of education; the expansion of secondary technical education has a significant impact on the quality of technical education provided by the Cameroon government; that infrastructure is grossly inadequate to enhance the acquisition of technical skills as observed in most of Cameroon's technical colleges, thus defeating the original objectives to facilitate the development of technical skills. It was recommended that the government should put a hold on the expansion policy for a period of twenty years and explore strategies and best practice on how to invest in the existing situation with ample provision for infrastructural development, material and human resources required by this sector.

Keywords: TVET, practical skills, expansion policy, infrastructure, implementation, implication and correlate.

Introduction and Context

Technical Vocational Education and Training (TVET) is known to be best suitable for the enhancement and acquisition of certain professional skills by students and individuals as required by the industry and society as a whole. There are conceptual differences between the roles of vocational training and education, yet the borderline between training and education is quite blurred. However, good training and good education are equally good – and actually very similar in nature when they promote the broad conceptual and analytical development of the trainee (Castro, 1990). Maybe as a confirmation to this assertion and as an obligation to meet up with her international engagements, the Cameroon law No 98/004 of 14 April 1998 to Lay Down Guidelines for Education in Cameroon states in Part III - (3) that “in addition to general education, practical training shall be provided to students in vocational colleges and high schools, on the basis of the courses they choose”. Viewed from this perspective, TVET goals are to provide trained manpower in the applied sciences, technologies and business particularly at the craft, advanced craft and technician levels whose fundamental aim is to develop and to impart the necessary technical skills into individuals in order to make them self-reliant economically (Ibrahim et al. 2013). In pursuit to this goal, the African Union (2006) in her Second Decade of Education for Africa Draft Plan of Action, outlined clearly that TVET should be used by member countries to provide programs to both boys and girls which in the 21st Century is deemed central to the effort to foster sustainable development and attain one of the MDGs - of eradicating poverty and hunger - in Africa.

Since independence in the 1960s, most African countries have continuously faced the odious task of nation building and attempts have been made to forge a development suitable to the leaders' visions or policies in the socio-economic, political and cultural domains. Cameroon being a third world country is not left out in this continuous battle against poverty, disease, hunger and illiteracy.

In 2011, the Head of State of Cameroon made a policy statement during his campaign for re-election to the presidency, stating that Cameroon will in 2012 become a huge construction site and as a result become an emerging Country industrially and economically by the year 2035. Consequently, the demand for technical education which is seen as a vehicle to lay the foundation stone for an industrial emergence by 2035 has continued to be on the increase. To match this vision with action, year after year, at the beginning of each academic year, the Prime Ministry signs decisions creating a number of secondary technical colleges and high schools. In 2011 alone, a Prime Ministerial decision N° 2211/2141/PM of 05/08/2011, created sixty five (65) new Government secondary technical colleges (GTC) across the Country. In a similar manner, decision N°

2011/2142/PM OF 05/08/2011 transformed twenty eight (28) Government secondary technical colleges into technical high schools (GTHS). Article two of both decisions stated that the opening or transformation would be effected upon a decision of the Minister of secondary education taking into consideration the means available. Nevertheless, experience has shown that politicians and elites, who are always behind these creations, usually influence the Minister to authorize the running of these colleges, with at times just the appointment of the principal. While the politicians jubilate for bringing such a gift to their people, the principals are most of the time abandoned to fend for themselves, for teachers, classrooms and funding, which today is borne by the few Parents Teacher Associations (PTAs) whose children attend the school.

The creation and transformation of these colleges most of the time, drastically ignore the peculiarities of this type of education in terms of infrastructure, equipment, personnel and facilities, which are all important inputs to guarantee quality. For instance, GTC Munyenge in Fako Division had only the Principal and one teacher for more than two hundred students in October 2011, meanwhile GTC Bakingili in the same division had not been able to carry out any relevant practical exercise by 16th December 2011, due to the lack of water and electricity. These trends might seem isolated but they actually reflect the national picture, given that the public secondary technical colleges all belong to the state and operate in the same educational system.

The government policy on creating these colleges has been ongoing since independence but in the past twenty years, politicians have hijacked it and its fundamental objectives are either ignored or given little consideration. Furthermore, one will observe that no appropriate study or research has been carried out to highlight its implication on the teaching/learning processes. A close look at these technical secondary colleges and technical high schools will indicate that they usually take off in precarious environments (with little or no attention given to infrastructure and equipment needs, teachers, textbooks, or availability of water/electricity facilities). Operating under such conditions, the outcome or results could not be above average from its original goal(s).

The continuous uncontrolled expansion of secondary technical colleges and technical high schools both numerically and programs offered have greatly compromised the quality of the graduates. Their poor performance in official examinations is telling and their practical output in their various areas of specialization in not sufficient as noted by the public whenever official examination results are made public.

Hudelson (1994) points out that one of the critical problems of many educational systems is how to improve job opportunities for the young people who do not compete for a post secondary general education. Therefore, products from secondary technical schools need quality education in order to meet competency levels required by the workplace. Recently, Yildirim and Simsek (2002) also observed that technical education is considered efficient as long as it meets the needs of students and the industry. Therefore, implementation of any educational expansion policy are heavily linked to quality even if there appears to be little agreement about how this link operates and how it can be strengthened (Ndibalema 2012), After all “there is little point expanding access to education unless there is reasonable quality” (World Bank, 2002 as cited in Ndibalema 2012:3).

When one sums up the contextual conditions under which the present secondary technical colleges and technical high schools operate in Cameroon, it is possible to illustrate diagrammatically the existing model of expansion within the sub sector of technical education, see figure 1 below.

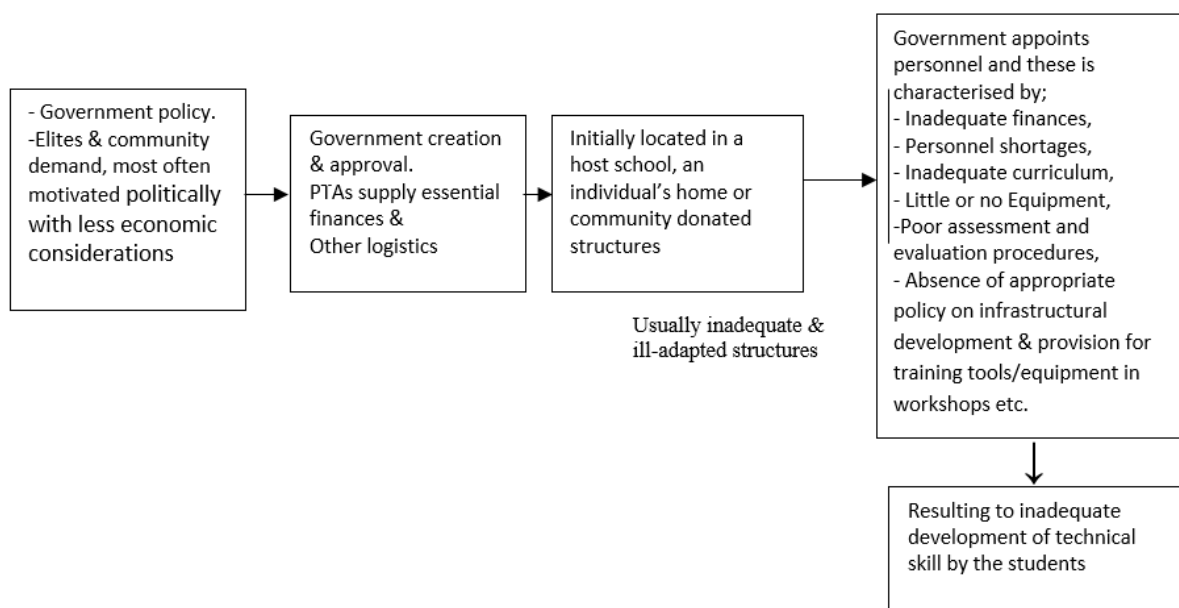


Figure 1: Contextual and Analytical model of Cameroon expansion policy for TVET

As shown in figure 1 above, the elites, community influence on government to create a technical college hardly take into consideration the huge financial outlays required by this type of education. Government on its part is forced to offset the political pressure by satisfying the demands from communities. The result is an existing number of colleges that do not follow an organised 'school map' based on demographic trends and sound economic needs coupled with local realities.

The research problem

Despite the rapid expansion of Secondary technical and vocational education in the past three decades characterized by an annual creation of public secondary technical colleges and technical high schools in Cameroon, there is a generalized public out-cry on most graduates unemployability, coupled with poor performances in public examinations and the average availability of infrastructure plus equipment to cater for this type of education. Could this picture be due to either the shortcomings in the expansion policy or the gap between existing curriculum and industrial needs elaborated by loopholes on an expansion policy that did not critically look at the specific needs (financial, human and infrastructure) of this type of education and their implications on the acquisition and development of basic and essential practical technical skills?

Since the acquisition, development and exhibition of technical skills is highly rooted on the existence of a holistic educational policy based on the nation's educational objectives (Osaki, 2009), our technical school graduates could only exhibit the required technical skills if we examine the loopholes in the implementation of the existing expansion policy on technical education, which will result in greater efficiency and effectiveness within the sub-sector. Hence, this research's interest in analyzing the existing policy in a bid to bring out its implications (merits and demerits) on the overall objective in the acquisition, development and exhibition of technical skills for an adequate technical and vocational education.

Purpose of the study

The purpose of this study was to analyze the effects of the implementation of the rapid expansion policy on Secondary technical education and highlight its implications on the acquisition and development of basic technical skills by graduates of this sector of education in Cameroon.

Research Questions

1. How has the implementation of the rapid expansion policy of technical education affected the acquisition and development of basic technical skills by students?
2. How has the implementation of the rapid expansion of secondary technical education influenced the quality of technical education offered by the state?
3. What negative implications have the rapid expansion of secondary technical education on the attainment of the fundamental objectives of this sector of Cameroon's education system?

Hypotheses of the study

Ho₁. There exist no significant negative relationship between the implementation of the rapid expansion policy of secondary technical education and the acquisition of basic technical skills by students.

Ho₂. The implementation of the rapid expansion of secondary technical education has no negative impact on the quality of technical education provided by the government.

Ho₃. The implementation of the rapid expansion policy of secondary technical education has no significant negative implications on the attainment of the fundamental objective of technical education.

Research Methodology

The descriptive survey research method was adopted for the study, and this was based on the triangulation technique relying on both the quantitative and qualitative strategies in collecting and analyzing data. The collection of data was through questionnaires based on the Likert scale, and observations that were limited to the Centre, Extreme North, Littoral, North West and South West Regions of the Republic of Cameroon. The study relied on the collection of opinions from the respondents and data from the Ministry of Secondary Education and its Regional delegations and colleges on the physical infrastructure, human, material and financial resources. Specifically, the sample included 60 regional pedagogic inspectors, 60 principals and 300 teachers in the field retained through the purposive and simple random sampling techniques.

The data gathered from the study was subjected to descriptive and inferential analysis. While some data was descriptively computed into frequencies and percentages, the hypotheses were verified using the Pearson's Product Moment Correlation at 0.05 level of significance with the aid of the Statistical Package for Social Sciences (SPSS) version 20.

Findings

The findings of this study are presented according to the research questions and hypotheses

Research Question One

How has the implementation of the rapid expansion policy of technical education affected the acquisition and development of basic technical skills by students?

To answer research above research question, more than 80% of the colleges retained for the study were observed. This was aimed at gathering evidence and information, which might have been left out, deliberately by some principals and teachers while filling the questionnaires due to unforeseen administrative or personal prejudices as analysed on table 1 below.

Table 1: Distribution of the analysis on the Observation check list

S/N	Situation observed	Frequency observed		
		True	False	Total
1	The colleges are in possession of their required workshops.	53	187	240
2	Workshops have the required equipment for training.	125	160	285
3	Workshops are in possession of hand tools for practical lessons.	33	154	187
4	Equipment found in the workshop is functional.	48	92	140
5	Facilities such as water and electricity are available.	34	26	60
6	Material required in the workshops for practical lessons are available.	40	50	90
7	The workshops have a maintenance policy.	55	5	60
8	The teaching and learning manuals, charts & models in the workshops are available.	25	35	60
9	There are regular practical exercises carried out in the workshops.	145	125	270
10	Qualified and required personnel operate the workshops.	136	124	260
11	Availability of libraries stocked with the latest industrial books.	14	46	60

Source: *Researcher*

From table 1 above, it is easy to observe that out of the sixty (60) GTCs and GTHSs colleges retained for the study, a good number that is 187 departmental situations occurred whereby many had no permanent structures that could be taken for a modern workshop meant for the realisation of any technical practical exercises. Most structures used for workshop practical lessons were either temporal, in some cases perched in classrooms which were unsuitable or at times working in the open air especially for building students. A good proportion of 160 (56.14%) workshops lacked modern equipment in the workshop as was observed especially in GTHS Ombe, which was furnished with equipment in the early sixties and are now mostly absolute. In some cases, about 50 (55.56%) where facilities existed, there were no materials for the practical exercises to be executed, and although a maintenance policy was effectively illustrated on charts in most offices of the Chiefs of work, there was little or nothing to repair due to the absence of equipment. To make matters worse, there existed a situation of unqualified personnel of about 124 (47.69%) who were not supposed to be teaching at these levels. Creation of colleges without modern libraries is an education disaster, and it was observed that about 46 out of 60 colleges had no buildings for libraries or stocked libraries with modern volumes on technology and the sciences.

Research Question Two

How has the implementation of the rapid expansion of secondary technical education influenced the quality of technical education offered by the state?

Based on opinions gathered from the open-ended questions submitted to Regional pedagogic inspectors, Principals and teachers on how the implementation of the expansion policy has influenced the quality of technical education offered by the State and the way forward. The opinion of the respondents is summarised as shown below in table 2.

Table 2: Descriptive distribution of RPIs, Principals and teachers opinion on what should be done on the implementation level of the expansion policy to improve on the quality and development of technical skills by Students (N = 400)

<i>S/n</i>	<i>Factors</i>	<i>F</i>	<i>%</i>
1	Government should re-structure or review the existing policy on secondary technical education.	296	74
2	The present policy is facing a lot of problems in its implementation as creation mismatches infrastructural need, so there is a need to halt the expansion for about 20 years.	313	78.25
3	Build and make available the necessary infrastructure that goes with this type of education.	341	85.25
4	Provide more classrooms.	272	68
5	Provide required drawing, science and technological laboratories.	202	50.50
6	Standards of teaching and learning should be improved upon by making available teaching/learning materials such as charts, models and hand tools.	288	72
7	Practical lessons should dominate theoretical and academic lessons.	63	65.75
8	Government should provide more funding for the sector.	341	85.25
9	Review the curriculum content and make it 75% more practical and 25% academic.	223	55.75
10	Curriculum should be tailored to meet the needs of the learner, industry and the society.	327	81.75
11	Train more qualified staff and increase their remunerations.	248	62
12	The end of course evaluation and assessment methods should be completely reviewed.	283	70.75

Note: *F* = Frequency, *%* = Percentage

As seen on table 2 above, when respondents were asked on what should be done to improve on the implementation of the expansion policy in the field of quality, the response was varied, but classified under twelve factors that kept reoccurring as seen above. The respondents unanimously proposed that there should be a review on the current expansion policy with a rating of 74%. This was probably due to the fact that as practitioners they must have identified gaps between the expansion policy and its implementation on the field with a rating of 78.25%, on grounds that colleges were created and opened to the public without accompanying infrastructure, thereby affecting quality adversely. Furthermore, a majority of respondents 341 (85.25%) thought it was proper to provide the structures before opening the colleges to the public. To ensure *standards* and *quality*, 72% proposed an improvement on the provision of teaching and learning materials such as charts, manuals and hand tools, etc. Meanwhile 85.25% proposed that government should grossly increase funds allocated to this sector of education. Another factor that had a strong showing was the curriculum content which 81.75% of the respondents thought should be made to reflect the end users aspirations, with another 70.75% blaming the evaluation and assessment methods as a major factor responsible for the poor results recorded by students. Hence, to corroborate this finding one should understand that trade areas as Home economics offer at times more than 27 subjects. This should not be taken as an isolated case; this is an actual reflection of the stereotype methods of evaluation and assessment the students are exposed to in this sector of education.

Thus, as an answer to research question 2, it was established that due to the rate/manner of implementation of the expansion policy that failed to seriously take into consideration the numerous inputs required by this sector of education, quality was highly compromised in the process.

Research Question Three

What negative implications have the rapid expansion of secondary technical education on the attainment of the fundamental objectives of this sector of Cameroon's education system?

Table 3: Description of respondents according to responses on the implications of the expansion policy on the attainment of fundamental objectives of secondary technical education (N = 400)

S/n	Identified Implications	F	%
1	At the level of implementation, too many difficulties experienced on training due to a gross mismatch on inputs and rate of expansion, hence the inability to attain the fundamental objective on skills development and the production of middle scale technicians for the industry and society.	301	77.75
2	With the continuation of such trends it will be difficult to attain emergence by the year 2035.	325	81.25
3	Production of technicians with insufficient technical practical skills	322	80.58
4	Generations stand to lose both materially and the medium to develop their intellectual capacities.	249	62.25
5	Programs offered don't reflect local realities both in content and scope.	268	67
6	Over crowded syllabuses coupled with evaluation/assessment in irrelevant subjects especially at the technical high schools level.	302	75.50

Note: F = Frequency, % = Percentage

From table 3 above, 77.75% of Regional Pedagogic Inspectors (RPI), principals and teachers thought that the production of the middle manpower technicians was at stake if the ongoing trends witnessed especially in inputs inadequacies continue without a check or are put on hold. 81.25% felt that even the much talked about emergence in 2035 would be compromised given that an emerging economy will certainly need its own poll of well-trained and qualified technicians. A good number of them, 80.58%, thought that the expansion is graduating technician with insufficient technical practical skills. Some of the respondents approximately 62.25%, reasoned that many children would end up missing an opportunity in developing essential industrial skills due to the poor training they had received. On the other hand, 67% of the respondents explained that the programs offered do not actually reflect industrial needs and at times those of the learners including the communities. Finally, 75.50% said the expansion has resulted to over crowded syllabuses with a stereotype evaluation and assessment methods that leaves the students most of the time unable to identify the objectives.

The data presented above in table 3 clearly indicate that expansion policy is actually having many negative implications on the attainment of overall educational objectives within this sector of education, as there was a unanimous worry on the overall output of the sector.

Verification of Hypotheses

Hypothesis 1. There exist no significant negative relationship between the implementation of the rapid expansion policy of secondary technical education and the acquisition of basic technical skills by students.

Table 4: Pearson Product Moment Correlation analysis of the impact of infrastructure of technical education in Cameroon on the acquisition of technical skills in the students (N=400)

Variable	$\sum X$	$\sum X^2$	$\sum XY$	Γ_{xy}
INFRASTRUCTURE	4890	61604	59653	0.63
ACQUISITION OF TECH SKILLS	4785	59111		

$p^* < 0.05$; $df=400$ critical $\Gamma_{xy} = 0.098$

The result of the analysis reveals that the calculated Γ_{xy} -value of 0.62 is greater than the critical Γ_{xy} -value of 0.098 at .05 level of significance with 398 degrees of freedom. With the result of the analysis, the null hypothesis was rejected and the alternative hypothesis retained. This result therefore means that the state of infrastructure has a significant effect on the acquisition of basic technical skills in the students.

Hypothesis 2. The implementation of the rapid expansion of secondary technical education has no negative impact on the quality of technical education provided by the government.

Table 5: Pearson Product Moment Correlation analysis of the impact of the expansion policy on the quality of secondary technical education provided in Cameroon (N=400)

variable	$\sum X$	$\sum X^2$	$\sum Y$	$\sum Y^2$	$\sum XY$	Γ_{xy}
EXPANSION	4929	63797	74531	0.36**		
QUALITY OF TECHNICAL EDUCATION	5940	92604				

$p^* < 0.05$; $df=400$ critical $\Gamma_{xy} = 0.098$

The findings of the analysis reveals that the calculated Γ_{xy} -value of 0.36 is greater than the critical Γ_{xy} -value of 0.098 at .05 level of significance with 398 degrees of freedom. With the result of the analysis, the null hypothesis was rejected and the alternative hypothesis retained. This result therefore means that the expansion of secondary technical education has a significant impact on the quality of technical education provided by the Cameroon government.

Hypothesis 3. The implementation of the rapid expansion policy of secondary technical education has no significant negative implications on the attainment of the fundamental objective of technical education.

Table 6: Pearson Product Moment Correlation analysis of the implication of the expansion policy of secondary technical education on the attainment of the fundamental objectives of technical education in Cameroon (N=400)

Variable	$\sum X$	$\sum X^2$	$\sum Y$	$\sum Y^2$	$\sum XY$	Γ_{xy}
EXPANSION	4929	63797	80058	0.38**		
ATTAINMENT	6390	105982				

$p^* < 0.05$; $df=400$ critical $\Gamma_{xy} = 0.098$

The finding of the analysis revealed that the calculated Γ_{xy} -value of 0.38 is greater than the critical Γ_{xy} -value of 0.098 at 0.05 level of significance with 398 degrees of freedom. With the finding of the analysis, the null hypothesis was rejected and the alternative hypothesis retained. This finding therefore means that the expansion policy on secondary technical education has significant implications on the attainment of the fundamental objectives of this type of education.

Discussion

The study revealed that due to the rate/manner of implementation of the expansion policy that failed to take seriously into consideration the numerous inputs required by this sector of education, quality was highly comprised in the process. This is in line with similar findings carried out by Akhuemonkhan and Raimi (2014) which concluded that the none availability of infrastructure that support practical lessons such as workshops, power source, library and conducive classrooms will affect students' practical skill acquisition negatively. Ericson (1962) had pointed out that deliberate practice is a critical process for the development and mastery of technical skills. Findings of the sector was more of a quantitative nature causing quality assurance factors such as equipment, teaching/learning materials, availability of personnel, curriculum content, availability of classrooms, water, electricity to be grossly ignored. Similar conclusions were arrived at in Nigeria, where it was observed that despite the continued efforts of government on TVET, the pace of technological progress, employment and industrialization is still too slow and unimpressive as evidenced by rising unemployment rates and level of poverty in the country (Ladipo et al, 2013 as cited by Akhuemonkhan and Raimi, (2014).

Findings equally showed that there were many negative implications linked with the expansion of this sector of education. For instance, a key input required for the expansion was supposed to be a corresponding policy on infrastructural development that required huge funding. However, this was not in place, causing shortages in many areas such as personnel, water/electricity supplies, less materials and workshop buildings. This is in line with a question posed by the World Bank on the raison d'être of expanding education when there is no assurance on provision of quality, effective utilization and accountability on the increased funding (Ndibalema, 2012:1-2).

Conclusion

The framing of this study was on the implication of the quantitative expansion policy of Secondary Technical

Education on students' acquisition of basic technical skills. There is enough evidence illustrating that over expansion of the secondary technical education sector in Cameroon has not impressively enhanced the acquisition of the basic technical skills required by the students in the process. There exist a dysfunction between theory and practice. What is expected of the implementation of any expansion policy in education is accompanying measures on infrastructural development and provision of all other essential inputs of such an endeavour, taking cognisance of the needs of the actors and local realities. However, this is not the case in Cameroon where the expansion in the field cannot meet up the basic requirement of providing an environment suitable for the acquisition and development of practical technical skills by students. As concluded, elsewhere students' learn better where practical task areas are constantly being revealed to them (Ibrahim et al, 2013:5). Therefore, there is a significant relationship between the implementation of the expansion policy of secondary education and the acquisition of basic technical skills by students in Cameroon.

Recommendations

Based on the findings, the following existential recommendations are proffered for TVET to be better developed in Cameroon and guarantee the acquisition of basic technical skills by students, it was recommended that:

- The government of Cameroon should put a hold on the expansion of the secondary technical education sector for a period of twenty years and explore strategies and best practices on how to invest financially in the existing situation with ample provisions for infrastructural, material and human resources required for this sector of education if overall objectives have to be attained by 2035.
- Funding of any educational system is very critical in the attainment of any educational objective(s). It is thus recommended that government should reestablish the levels of recurrent expenditure before the 2011 budgetary cuts experienced by the Secondary technical education sector, and should make a 75% increase to its annual budgetary allocation to infrastructural development and purchase industrial equipment for the sector in the next twenty years to ensures quality for ultimate achievement on practical skills development.
- The Cameroon General Certificate of Education Examination Board, Ministry of secondary education and Office de Baccalauteate Examination Board should review their methods of evaluation and assessment as far as technical secondary education is concerned. The present methods are plagued with indefinite timetables for candidates, cramped timetables and too many irrelevant subjects that have little or no relevance to the candidates' field of studies.
- There is enough evidence both in literature and data collected that the present condition under which the sector of Secondary technical education is operating is not likely producing quality graduates. Therefore, it is vital and important to put in place quality assurance mechanism in the sector. This implies that it is critical for policymakers to re-examine the objectives, attitudes, procedures and institutional control systems from the onset with a view that the identified set of standards and quality earmarked are maintained in the course of implementation of the expansion policy.
- A rational policy on the infrastructural development needs of the Secondary technical education sector should be instituted taking into account the local realities and needs of the learners, industry and society.
- Modern technological trends are moving in a fast pace, therefore, there is a need to review both the curriculum content and stereotype assessment/evaluation procedures for the Secondary technical education sector as this is paramount if Cameroon has to meet up with the technical skills required by her technicians for emergence by the year 2035.
- Students should take advantage of the opportunities offered by government through technical education and make proper use of the programs, materials and other resources put at their disposal to develop an interest in their practical exercises so as to acquire practical technical skills in their various areas of specialization, so as to become self reliant and job creators in future.
- Employers who are end users should provide the industrial environment and their facilities for students on excursions and internship in order to facilitate technological and practical skills transfer in real work situations. Furthermore, employers should budget for scholarships and research works in their establishments to encourage young Cameroonians to engage in industrial and technological development for the country as a whole. This will go a long way to reduce and eliminate the negative perception society holds on TVET.

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