# EXAMINATION OF THE EFFECTS OF COST SHARING POLICY ON SCIENCE AND TECHNOLOGY EDUCATION AND TRAINING IN KENYA NATIONAL POLYTECHNICS

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#### **ABSTRACT**

Strengthening equitable gender access to and success in science and technology courses is an essential prerequisite for Kenya's economy. The country's potential for development in agriculture, health and industry is going to depend on a cadre of scientists and technologists from the polytechnics for their services. This study focused on the challenges of access into Kenya national polytechnics. The findings indicate that fewer female students than male students accessed science and technology courses and that the common factor which affected their access was lack of sufficient funds for training. Despite the disparity in access, they were at parity in performance.

#### INTRODUCTION

Science and technology learning for all is equity rather than a relevance issue. Achieving equity in education is important because of its relationship to economic development and social justice(Lewin, 1992) The long-term goal in achieving equity is to eliminate disparities by ensuring equitable participation and performance in Kenya's education system. Gender inequity in science and technology is pronounced in Africa where sociocultural factor contribute to achievement and attitude difference (Harding, 1992 and Erinosho, 1994). Industrialization has been identified as the linchpin of the development of the Kenyan economy. Policy and planning aims at Kenya's attainment of the status vision of industrialization in 2030. The availability of a well educated and relevantly trained workforce is regarded as critical to industrialization (Republic of Kenya(1998).

The contribution of both men and women is crucial if Kenya is to compete favorably in the world economy. Women are educators of the young and their positive attitude, to, and enhanced achievement in science and technology would boost the participation of children especially girls.

## METHODOLOGY

This study used two research designs: First, Ex-post facto or causal comparative research which explored relationships between variables and determined their reasons or causes for the current status of the phenomenon

under study. Secondly, descriptive research determined and reported the way things were on the ground. Kerlinger (1983) stated that ex-post facto is a systematic, empirical inquiry in which the researcher did not had direct control of independent variables because their manifestations had already occurred. In this study, the performance, access, the cost of education and challenges faced had occurred by the time data was collected. The advantage of expost facto design is that data cannot be manipulated by the researcher or the respondent (Gall and borg, 1996).

Descriptive research is also called statistical research. The main goal of this type of research was to describe the data and characteristics about what was being studied. The idea behind the research was to study frequencies, averages and other statistical calculations. Although this research is highly accurate, it did not gather the causes behind a situation.

The study was carried out in Kisumu and Eldoret Polytechnic colleges in Kenya. Kenya is located on the Eastern Africa region. It is divided into almost two equal parts by the equator and lies between  $4\frac{1}{2}$ ° N and  $4\frac{1}{2}$ ° S latitudes and longitudes 34°W and 42°E. The country has an area of  $584,000 \text{ km}^2$ . It is divided into forty seven counties. Kisumu polytechnic is situated in Kisumu County. In 2008, Kisumu polytechnic had 9 academic departments, 163 lecturers and 1395 regular diploma students. Eldoret polytechnic is situated in Eldoret County. The polytechnic in 2008 had 7 academic departments, 109 lecturers and 1413 regular diploma students in 2008. The two national polytechnics were chosen because they were expected to produce technically high skilled middle level man power required for national economic growth and development

The target population for this study in 2007 was 2808 regular diploma students, 6 Heads of Departments of the following departments; Building Engineering, 152, Computer and Information Technology, 239, Applied Sciences, 1171, Mechanical Engineering, 250, Automotive Engineering, 449 and Electrical and Electronic Engineering, 547 students. Two Principals and two Finance Officers from Kisumu and Eldoret polytechnics were purposively sampled

A formula by Israel Glenn (1992) was used to determine the sample size of this study. The formula yielded a sample of 350 regular Diploma students. Stratified random sampling technique was used to determine 58 students in years 1, 2 and 3. Purposive sampling technique allowed for the use of cases with the required information relevant to the objectives of the study which were; 6 Heads of Departments 1 Principal and 1 Finance Officer from each Polytechnic.

Students of years 1, 2 and 3 were sampled so that they could give hetrogenous experiences and views while in the same institution. Six heads of Applied sciences, Building and Civil Engineering, Electrical and Electronic Engineering, Mechanical and Automotive Engineering, Computing and Information Technology and Hospitality departments were purposively sampled to give indepth information concerning curriculum implementation, access, performance and challenges faced in national polytechnics.

The finance officers gave the financial sources, allocations and how they were utilized in the polytechnics. The two principals gave the administrative aspects of running the institutions using questionnaire and giving indepth general information through interviews.

Instruments for data collection comprised of four different questionnaires, structured interview schedule and document analysis guides. The first section in the questionnaires was used to obtain background and personal information of respondents. The remaining sections generated information on unit cost, access, success and challenges in the national Polytechnics. This method of data collection enabled the researcher to obtain specific information from the relevant respondents to avoid guess work. The structured interview schedules were given to the Principals to obtain in-depth information on the effects of cost-sharing policy on science and technology education and training in the polytechnics. Questionnaires were used to obtain important information about the sample population. Each item in the questionnaire was developed to address a specific objective or research question of the study. Interviews are face-to-face encounters. The researcher therefore established a friendly relationship with the respondents prior to conducting the interviews.

#### The Influence of Cost Sharing Policy on Access

The fundamental axiom of manpower requirements is that highly qualified manpower constitutes a bottleneck to economic growth. They are indispensable input into the productive process and takes a long time to produce. Their shortfall must impede growth. These were study results put down in the 1960s by Blaug (1996) in his manpower requirement approach. In Science and Technology fields, these results are still very relevant. There is minimum education for each occupation below which the task in question cannot be carried out at all but above which additional qualifications have no economic value!n this study, the researcher was very interested in the number of regular diploma students who were able to access Kenya national polytechnics. These categories were very important to the researcher because they were the hands on employees who could assist Kenya achieve her vision for 2030 – industrialization very fast. The second research questions responded to was: What is the influence of cost-sharing policy on the access of regular diploma students in Kisumu and Eldoret polytechnics? The responses were descriptively recorded and analyzed in respect to the experiences of the students, lecturers and the national polytechnics' administrators. The rest of the materials were retrieved from the institutional documents.

Since the implementation of Free Secondary Education (FSE) in 2008, there had been an upsurge in enrolment in public schools. In 2010, there were about 6000 (six thousand) secondary schools in the country. Daily Nation (14/3/11) reported that form four candidates who sat for KCSE in 2010 were 351,955. Out of these students, 30,000 were expected to join public universities. Approximately 50,000 were expected to join private universities. The rest of 80,000 were expected to join TIVET institutions and other middle level training colleges. 191,955 students would have to join private colleges or be absorbed as unskilled labourers. Those students who would have wished to join Kenya national polytechnics might not secure chances in these institutions because the institutions are only two in the country. The wastage trend is likely to grow in future if it does not receive the immediate necessary urgent attention of creating adequate capacity to absorb the students.

Kisumu polytechnic college enroled 410 first year regular diploma students in 2010, out of this enrolment, 81% were male students and 19% were female. Second year students were 340 of which, 84% were male and 16% were female. The polytechnic had an enrolment of 368 third year students out of which 82.3% were male and 17.7% were female. Female gender disparity was evidenced in all departmental enrolments except in food and beverages department where they were more.

Table 1.1 below shows the enrolment of regular diploma students in Kisumu polytechnic by course, by year and gender in 2010.

Table 1.1: Enrolment of regular diploma students in Kisumu polytechnic Enroled for science and technology course in year 2010.

	COURSES	1 <sup>ST</sup> YEAR			2 <sup>ND</sup> YEAR			3RD YEAR		
		M	F	Т	M	F	T	M	F	T
1	Applied Biology	27	12	39	39	10	49	56	17	73
2	Analytical Chemistry	5	1	6	14	5	19	21	5	26
3	Food and Beverage	10	23	33	6	24	30	10	34	44
4	Quantity Survey	3	0	3	8	1	9	3	1	4
5	Civil Engineering	40	6	46	41	4	45	30	1	31
6	Building and Construction	10	0	10	23	0	23	20	1	21
7	Electronics Engineering	17	0	17	17	1	18	22	0	22
8	Electrical Power Engineering	89	8	97	81	5	86	55	1	56

A	ustralian Journal of Business ar	nd Mana	geme	nt Res	earch		Vol.1	No.2	May	-2011
9	Computer Studies	0	0	0	7	1	8	10	4	14
10	Information Technology	53	14	67	0	0	0	0	0	0
11	Information Communication	35	14	49	0	0	0	0	0	0
12	Mechanical Production	17	0	17	17	2	19	16	0	16
13	Mechanical Engineering Plant	15	0	15	18	0	18	32	1	33
14	Motor Vehicle Tech.	1	0	1	0	0	0	0	0	0
15	Automotive Engineering	10	0	10	16	0	16	28	0	28

**SOURCE: (ADMIN RECORDS)** 

**TOTAL** 

One interesting issue which was found out in Kisumu polytechnic by the researcher was that a hostel was not occupied. There were quite a number of assumptions that crossed the researcher's mind. That one, for this hostel to be unoccupied, enrolment must have been going on. Two that the boarding cost for the hostel was too high for the students to afford. Three, that the entry marks into the polytechnic were too high for a number of students who must have been locked out and fourth, that the administrators might have constructed unnecessary structures to the expense of research, innovation, teaching and learning materials, machines and equipment. No convincing sought reason was given thus the assumptions

Table 1.2 and figure 1.1 (a/b) below show the comparison between male and female students in Kisumu polytechnic 2010.

Table 1.2; Gender enrolment comparison in Kisumu Polytechnic by academic year in 2010

STUDENTS										
YEAR	M	%	F	%	TOTAL NO. OF STUDENTS					
1	332	81	78	19	410					
2	287	84.4	53	15.6	340					
3	303	82.3	65	17.7	368					
TOTAL	922	82.5	196	17.5	1,118					

SOURCE: (ADMIN RECORDS)

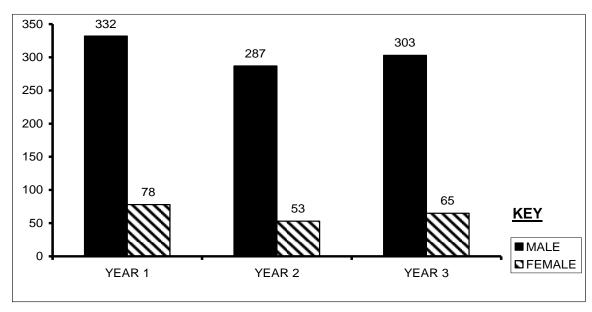


Fig. 1.1(a) Gender enrolment comparison in Kisumu Polytechnic in 2010

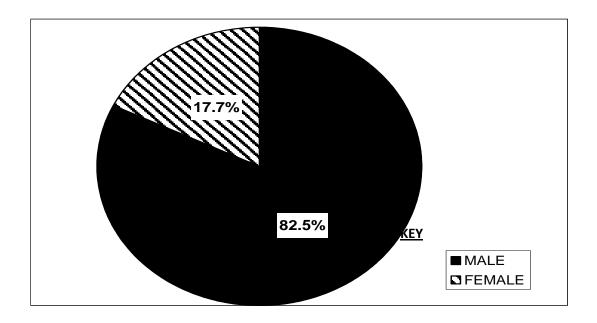


Fig.1.1(b) Percentage gender enrolment comparison in Kisumu

Polytechnic college in 2010.

Gender enrolment disparity was also evidenced in Eldoret polytechnic. Female students were either very few or absent in some courses. Tables 4.10 and 4.11 below give the enrolment and gender comparison respectively while figures 4.8a and b gives the picture.

Table 1.3: Enrolment of regular diploma students in Eldoret Polytechnic taking science and technology education and training courses in 2010.

			1 <sup>ST</sup> YEAR		2 <sup>ND</sup> Y	EAR	3 <sup>RD</sup> YEAR	
	COURSE		$\mathbf{M}$	$\mathbf{F}$	$\mathbf{M}$	$\mathbf{F}$	$\mathbf{M}$	$\mathbf{F}$
i)	Applied Biology		20	10	16	15	16	9
ii)	Analytical Chemistry		30	9	13	6	17	9
iii)	Food and Beverage		2	10	0	0	0	0
iv)	Civil Engineering		32	0	40	4	38	7
v)	Building and Construction		3	0	11	1	6	6
vi)	Medical Engineering		19	10	0	0	0	0
vii)	Electronics Engineering		26	2	14	0	14	0
viii)	Electrical Power Engineering		14	1	56	5	38	4
ix)	Telecommunication Engineering		22	2	31	5	21	4
x)	Instrumentation control		11	0	12	0	10	1
xi)	Computer Studies		16	4	24	7	21	5
xii)	Information Technology		39	16	1	0	0	0
xiii)	Applied statistics		2	0	12	9	18	5
xiv)	Mechanical Engineering (Power)		23	1	11	1	17	2
xv)	Mechanical Engineering (Plant)		16	0	29	3	22	3
xvi)	Mechanical Engineering Production		20	0	18	1	12	1
xvii)	Mechanical & Automotive Engineering		12	1	20	0	14	0
		TOTAL	307	66	318	57	264	56

SOURCE: (ADMIN RECORDS)

Table 1.3: Gender enrolment comparison in Eldoret Polytechnic by academic year in 2010

YEAR	AR M %		F	%	TOTAL NO. OF STUDENTS
1	307	82.3	66	17.7	373
2	318	84.8	57	15.2	375
3	264	82.5	56	17.5	320
TOTAL	889	83.2	179	16.8	1,068

**SOURCE:** (ADMIN RECORDS)

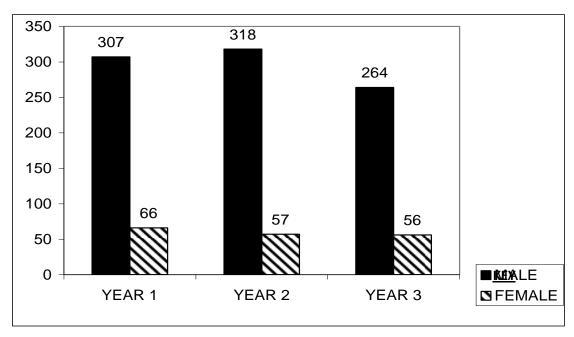


Fig. 1.2(a) Gender enrolment comparison in Eldoret Polytechnic in 2010

The two polytechnics showed an increase in enrolment in the years 2009 ( $2^{nd}$  year's) and 2010 ( $1^{st}$  year's) compared to 2008 ( $3^{rd}$  year's).

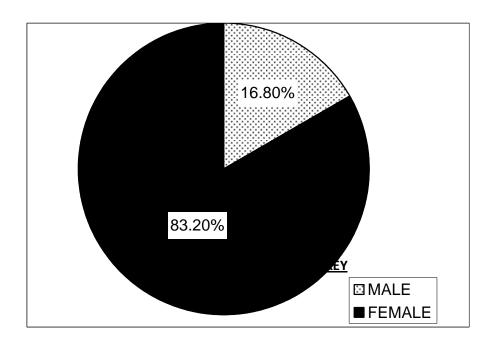


Fig.1.2 (b) Percentage gender enrolment comparison in Eldoret

Polytechnic in 2010

The following factors were given by heads of departments to be affecting access into the polytechnics:

- (i) Gender, Socio-cultural factors and prevailing public perception led to limited access to the national polytechnic. While some programmes were believed to be male oriented, like engineering, others like secretarial and food and beverage were believed to be for females. Lack of information about courses in the polytechnics to the public was a challenge.
- (ii) Limited space for learning in the institutions and expensive boarding facilities were challenges.
- (iii) Negative attitude towards TIVET courses by the public who considered them as meant for academic failures limited access.
- (iv) Cheaper private colleges which offered almost similar courses were competitors.
- (v) Entry requirements into the polytechnics which were pegged quite high for students in disregards to those students who did not aspire to do degree course after graduation. This was a bottleneck for access.

## The influence of cost-sharing policy on performance

The research question that guided this study was: What is the influence of cost-sharing policy on the performance of regular diploma students taking science and technology education courses in Kisumu and Eldoret polytechnic?

The key variables that impact on quality of education include curriculum, instructional materials and equipment, physical facilities, lecturers' assessment and examinations, institutional management and institutional environment. Improvement on the quality of education focuses on setting of standards for these variables and ensuring that the set standards were adhered to.

ROK (2005) noted that pursuit to internal efficiency in Kenya, education system required policy attention. Amuka (2003) indicated that the primary subjects requirements for science and technology courses were Physics, Mathematics, Chemistry and Biology. Yet Physics, according to Okebukola (1995) and Mathematics FRD (1993) were least preferred subjects by students at secondary levels. This was because of lack of computational skills by the students, Ogolla (1997) and inappropriate teaching methodologies used by teachers (Nganga 1999) and (Waithaka 1996). Other reasons were inadequate equipment and apparatus (Orogho 1996).

The researcher found out that there was curriculum inflexibility due to cost implications. Some courses were too expensive for the students to undertake. It was also found out that the variables mentioned above were either inadequate or were not relevant to TIVET's instructional requirements. The management style in some cases knelt more on the commercial aspects of the institutions than on research. This was evidenced when the researcher compared the number of Income Generating Projects (IGP) undertaken in the institutions to the number of research projects. Table 1.4 below shows the resposes.

Table 1.4; National Polytechnic principals' responses on Income

**Generating Project** 

Statements		N/A 1	Disagree 2	Not sure 3	Agree 4	Strongly Agree 2
(IGP) should be mandatory in the polytechnic	Kisumu Eldoret				4	
More focus on IGP shifts focus from academics to business	Kisumu Eldoret		2		4	
Most of the departmental operation funds came from IGP	Kisumu Eldoret	2 2				
Income generated from IGP were more often misappropriated or mismanaged	Kisumu Eldoret	N/A	2			
IGP funds were meant to subsidise economically less fortunate students	Kisumu Eldoret		2		4	

## SOURCE (DATA)

There were different opinions from Eldoret and Kisumu polytechnic administrators on whether or not Income Generating projects shifted focus from academics to economical investments. Kisumu polytechnic administrator felt that too much of (IGP) shifted attention from academics to commercial activities. One thing was clear from both the principals that the importance of IGP was to generate funds to subsidize the institutions' revenue for operations. For example, they used the fund to;

- (i) purchase of training materials,
- (ii) hire or contracting lecturers and workers whenever there were shortages and,
- (iii) for repair and maintenance of the service infrastructures in the polytechnics.

The question asked here was that if the IGP were that beneficial to the polytechnics, then their values could be improved to be vision 2030 compliant. The recycling skills of milk, eggs, fruits and vegetables production done by both institutions could be translated into fruits canning, preservation of vegetables, production of long life milk e.t.c. Manufacturing of these products in the institutions would create employment, improve standards of living and yield more income to the polytechnics. The income would be used to improve the infrastructures in the polytechnics. The students would also gain more of the industrial skills required for self sustainability once they graduated. This could only be possible if the government injected more grants to bridge the financial gaps in research and innovation. A look at Kisumu national polytechnic KNEC results was a sorry situation. Referrals and failures took a centre stage

The female enrolment in all the courses except for food and beverages was dismal. Out of the 348 students who sat for KNEC examinations, in 2008 23.6% were females. Mechanical and Automotive Engineering did not

present female students for examinations. There was no student who got a distinction. Students with credits were 10.6%, pass were 26.2% referrals were 29.3%, failures were 31.9% and 2% were absent.

Examination results scenario in 2009 was no different from 2008. Very many students either failed or were referred. In 2009, there was a slight increase on the number of students who sat for the KNEC examinations. Female enrolment still remained low at 26.65%. Mechanical, Automotive Engineering and building construction did not present female students.

In 2008, 128 out of 348 regular diploma students who were 36.78% passed the KNEC examinations while in 2009, 102 out of 379 students who were 26.91% passed their examinations. The percentage wastage of 63.22% and 73.09% were too high for a national college. The researcher would boldly say that the Polytechnic administrators required to re-examine curriculum delivery in their institutions. The results attested to the below standards of learning and teaching materials and machines observed by the researcher in the laboratories and workshops.

Students were taught practical subjects theoretically due to one, lack of adequate space; two, inadequate teaching and learning materials and three, inadequate competent resource persons. For example in a department of 14 staff members only 5 had the required knowledge for that particular subject at that level, 9 others were learning on the job.

Eldoret polytechnic KNEC 2009 examination results were equally not good.

Female students enrolment in all the courses were dismal except for applied Biology and Information technology studies. Out of 735 regular diploma students who sat for KNEC 2009 examinations in various courses, 0.7% got distinctions, 13.7% got credits, 29.8% got passes, 34.96% were referred, 18.64% failed and 2.2% were absent. Four out of the five distinctions were from information technology studies. The core engineering courses like mechanical, Civil and Building had mass referrals and failures.

From the examination results, the researcher looked into the aspects of Curriculum Based Establishment and other quality assurance and standards activities in the polytechnics which were associated with results.

Table 1.5 below gives the statistic

Table 1.5; Kenya national polytechnics Curriculum Based Establishment by gender in 2010.

	LECTURERS									
	Department	Kisum	u Polyt	echnic		Eldoret 1	Polytech	nic		
		M	F	T	R	M	F	Т	R	
1	Computer study	10	3	13	16	11	2	13	21	
2	Building & Civil Engineering	12	-	12	16	6	0	6	16	
3	Mechanical & Automative Engineering	22	1	23	26	17	0	17	21	
4	Applied Sciences	10	8	18	20	8	7	15	24	
5	Electrical &Electronic Engineering	13	2	15	17	9	1	10	15	
	TOTAL	67	14	81	95	51	10	61	97	

**SOURCE: (DATA)** 

Kisumu Polytechnics in 2010 there were 82.7% male lecturers in five departments of science and technology courses as compared to 17.3% female lectures. Kisumu polytechnic principal indicated that there were shortages of 14 lecturers while the Eldoret principal indicated that he had a shortage of 36 lecturers in the institution.

As much as a lot of emphasis was put on access into TIVET institutions the polytechnics administrators grappled with the shortage of lecturers. They also faced difficulties in handling lecturers who did not have the right academic qualifications to handle the students. These were some of the ways the polytechnic principals felt lack of relevant academic skills and qualifications affected content delivery to students:-

- (i) that the practical nature of the courses in the polytechnics required lecturers who were competent in the subject matter and had the required practical skills to transfer to the students.
- (ii) that secondary trained teachers who were posted into the polytechnic institutions lacked the required practical skills for polytechnic courses and were often challenged by the students when teaching.

On subject content, it was lamented by the principals that in some cases, the students were more knowledgeable in subject content and skills than the lecturers. That the students were widely exposed to **IT** in research than some lecturers and as way forward for these challenges, the principals with the support of the government were;

- (i) replacing the retired and deceased lecturers with qualified and relevant ones.
- (ii) upgrading the willing existing lecturers by giving them scholarships and study leaves to further their studies.

Apart from the competency of the lectures, there were other activities in the institutions which could improve management and content delivery skills like workshops, motivational talks and seminars. The researcher sought to know how often these activities were carried out in the two polytechnics.

Using a scale of 1-5, the researcher found out the frequencies of curriculum and co-curricular activities that took place in Kenya national polytechnics as indicated on Table 1.6 below

Table 1.6; Frequencies of curriculum and co-curricular activities in Kenya national polytechnics in 2010.

	Action	Poly	Very often	often	rarely	None	N/A
			1	2	3	4	5
1	Made an invention	Kisumu		2			
		Eldoret				4	
2	Seminars	Kisumu		2			
		Eldoret					5
3	Workshop & capacity building	Kisumu			3		
		Eldoret		2			
4	Internal quality assurance and standards	Kisumu		2			
	1 7	Eldoret		2			
	External quality assurance and	***					
5	standards	Kisumu		2			
		Eldoret			3		
6	Educational excursions	Kisumu		2			
		Eldoret			3		
7	Industrial linkage exposures	Kisumu	1				
		Eldoret		2			
8	Staff Appraials	Kisumu			3		
U	Suit Appluius	Eldoret			3		

## **SOURCE: (DATA)**

It emerged from the data above that while departmental meetings and internal inspections were done regularly in the two polytechnics, Kisumu polytechnic rarely held workshops and capacity buildings for its staff and that staff appraisals were limited. It was also unfortunate for Eldoret polytechnic that they never went out for seminars, made an invention and that they rarely had external quality assurance and standards. Eldoret

polytechnic did not go for educational excursions often and rarely had staff appraisals in 2010. With a staff which already had some problems of content and skills competency, they required more organized seminars, capacity buildings and appraisals for them to deliver effectively to the students. If all of these activities were well planned for in advance and implemented, the polytechnics would be self evaluating and would improve in their out-put, that is performance.

The researcher found out that both polytechnics had a five year institutional strategic plans. It was unfortunate that apart from the already completed or on going projects, there were few projects on the strategic plan for future. Long term plans were necessary. The two polytechnics placed quite a lot of emphasis on income generating projects which could have been to the expense of research. The following reactions attested the thought. Table 4.13 showed how the principals reacted to the questions on income generating projects. A scale of numbers 1-5 was used to test the degree of agreement with the questions. It was very logical for them to emphasize on IGPs because they lacked adequate funds for the general operations of the polytechnics to the expense of academics.

Performance trends were almost similar in both the polytechnics. Referral and failure rates were very high. Distinctions and credits were rare and pass marks were very few.

Eldoret polytechnic had all the basic necessities required in a polytechnic because it was purposefully built to be a polytechnic. It therefore had little excuses as inadequacy of infrastructures as far as performance was concerned. The researcher found out that these reasons may have caused the poor performance in Kenya national polytechnics.

- (a) Inadequate relevant laboratories and workshops which led to practical courses done theoretically
- (b) Inadequate relevant apparatus / machines and equipment. Students encountered some of these gadgets in examination rooms as they never used them for learning.
- (c) Inadequate industrial linkages for students
- (d) Less research projects were done due to cost implications on the students and for lecturers.
- (e) On and off of students in the polytechnics due to tuition and project fees non-payments
- (f) TIVET quality assurance and standards monitoring personnel's touch was missing to check on the curriculum delivery and implementation. Accountability was therefore not emphasized.

Since most of the students found the courses un-affordable, one would therefore expect that not all of the students who got referrals were retained. A number of students must have dropped out. The percentage wastage due to referrals and failures from the two polytechnics was very high. The major courses of drop out from the two polytechnics were academic failure and the un affordable fees and levies charged. An examination of the above probable causes of the dismal performance was paramount. If these polytechnics were to be the production units for the middle level college engineers who were to assist Kenya to industrialize by 2030, then the policy makers required to thoroughly examine curriculum delivery and evaluation in Kenya national polytechnics Recommendations

# The following were recommended according to the objectives of the study

- 1. Affirmative action to sponsor or give scholarships to deserving female students wishing to join TIVET institutions was encouraged to balance the gender inequality.
- 2. Curriculum policy makers re-visit the original 8-4-4 curriculum and re-introduce technical subjects in primary and secondary schools. This would create positive awareness of science and technology courses to all the stakeholders.
- 3. Special allocation of funds by the government for the basic and relevant polytechnic physical and service infrastructures for example laboratories, workshops, libraries, hostels, teaching and learning materials and equipment was urgently required.
- 4. Quality Assurance and Standards officers to visit these institutions and guide the lecturers and the management in running of the institutions.

- 5. The government to increase grants and also source for more international aids to alleviate the fees burden from parents in order to increase access.
- 6. Research should be prioritized when allocating funds.
- Income Generating Projects should be upgraded to produce national and internationally acceptable
  goods and services. This will create employment, improve research and generate the very needed
  funds.
- 8. Reduce the entry requirements for diploma students who do not aspire to go for degree courses on completion to increase access.
- 9. Do not convert the existing TIVET institutions into universities. Build new universities instead.
- 10. Practical subjects should NEVER be taught theoretically. Limit the numbers of students if there is no space and give the few quality skills to improve performance.
- 11. Reduce the unit cost of training a regular diploma student by providing hostel facilities with subsidized costs to reduce drop outs.
- 12. Identify students who were affected or infected with HIV/AIDS, coming from marginalized areas, physically challenged and give them the special non-stigmatized attention that they deserve.

#### ACKNOWLEDGEMENT

The researcher would like to acknowledge Kisumu and Eldoret Polytechnic students, lecturers and the administrators who provided the responses for the data used and the two supervisors who guided the study.

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