

Research Article

Courses Offered in Technical Vocational Educational Training Institutions: Implication on Student Enrolment in Bungoma County, Kenya

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Abstract: The purpose of the study was to investigate the effect of courses offered in Technical Vocational Educational Training institutions on student enrolment in Bungoma County, Kenya. The study targeted 82 Technical Vocational Educational Training institutions, 82 principals, 714 lecturers, 9098 students. The study employed proportionate stratified random sampling, simple random sampling and census to select 426 respondents. Data collection tools comprised questionnaires and document analysis. Data analysis techniques were; descriptive statistics, one way ANOVA and Correlation analysis. The study established that the number and type of courses had a significant effect on student enrolment and recommended that government aligns the curriculum offered in Technical Vocational Educational Training institutions to the needs of the stakeholders and the job market.

Keywords: Courses, Technical, Vocational, Training, Implication, Enrolment.

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INTRODUCTION

Kenya lays great emphasis on Technical Vocational Education and Training (TVET) for her social and economic growth in the 21st century. Her estimated requirements for an effectual technical workforce, is in hundreds of thousands by the year 2030. The prerequisite for this milestone is pegged on attainment of a gross enrolment ratio of 20% in TVET institutions annually, whose enrolment however, continues to be far below targeted numbers [1]. Aligning the curriculum offered in TVET institutions to suit the needs of the stakeholders and the job market is one way that increase in enrolment in TVET institutions can be achieved [13]. A study by Khaguya [2], investigated the factors influencing female learners' enrolment in TVET institutions in Kenya. The researcher used case study research design and employed the Krejcie & Morgan formula to obtain a sample size of 219. The data collection instruments were questionnaires and interview schedule. Multiple regressions were used to analyze data and the findings were presented using APA tables. The study indicated that psychological factors influenced the enrolment. The findings indicated that majority of respondents specified that technical training is male oriented and that in elementary school years, girls are equally successful in many technical skills but later developed

negative attitudes towards Technical education, hence the need for female role models in TVET to inspire them to pursue technical courses.

In a related study, Kirima & Kinyua [3] examined enrolment of students in Biology in public secondary schools in Central Meru, Kenya. The study utilized descriptive study research design for a target population of 9859 in 49 public secondary schools. The sample size was 355 comprising 345 forms three and four students and five trained biology teachers and five heads of the science department. Stratified random and Purposive sampling techniques were also used. Questionnaires and interview schedules were used for data gathering. Based on the research findings, teacher-related factors influenced students' choice of Biology. On the other hand, Kitui [4] studied factors influencing the access to TVET in Bungoma East Sub County in Kenya. The research used descriptive survey design, while data was collected by questionnaires. Cluster sampling technique was used to select 120 trainees, 5 VTC managers and one sub-county youth officer from a target population of 340. Data was analysed by use of frequencies and presented in histograms, pie-charts, percentages and tables. Findings indicated that career choice among VTC students was due to the desire for employment after training.

Prakasam & Mukesh [5] studied the differential and determinants of enrolment by academic discipline in tertiary education in India. Data was collected by National Sample Survey 71st round data on social consumption of education. The study used multinomial regression model to analyse factors affecting course choice in tertiary education. Findings from the study indicated that there was gender disparity between Humanities and Engineering; there were two paradigms of choices of courses and socio-economic status in terms of profession and non-professional courses. The study recommended that a multi-pronged strategy be used to minimise course and regional imbalance in providing access to education and employment opportunities. Wladis *et al.*, [6] on their part studied the role of enrolment choice in online education rationale and course difficulty, as factors of retention. The study utilized data from the office of Institutional Research from a large, urban community college in North east region in the USA. Data was compiled for 122 course sections and matched with a sample of 2330 students from a large urban community college to analyze two main course level factors affecting online retention: reason for choice of course and level of course difficulty. Findings from the study showed that online modules or timetabling, especially for lower level courses increased dropout risk. Further the study recommended that to enhance online courses, there is need for focused learner support for specific course type to ensure persistence and retention.

Jordan [7] sought to review data drawn from the public domain in order to investigate factors affecting trends in enrolment and completion of Massive Open Online Courses (MOOCs) in UK. Methodology used was online data aggregation on enrolment and completion for as many MOOCs. Data analysis was conducted using Linear Regression carried out with Minitab Statistical Software. Study population was 43000 students and 6.5% of whom complete the course. Findings revealed that enrolment numbers were decreasing with time and are positively correlated with course rate. Completion rates were consistent with time, university position, and total enrolment, but negatively correlated with course length. In another phenomenon, Mbamara & Eya [8] researched on Causes of Low Enrolment of Physics as a Subject of Study by Secondary School Students in Nigeria using descriptive Survey design. Stratified random sampling was used to select 12 schools selected from 4 states in south-eastern Nigeria, comprising students, teachers and principals. Instruments of data collection were questionnaires, interviews schedules and document analysis. Findings of the study indicated that the main causes of low enrolment in physics in schools among other things was the subject combinations and envisaged career choices which excluded physics. A number of recommendations

to stem the low physics enrolment syndrome were proffered.

Kupsoboi [9] investigated how awareness and institutional accessibility affected choice of training for students in IST in Bungoma County, Kenya. Mixed research design and methodology were used in the study. Purposive, simple and stratified random sampling techniques were used to a sample of 291 from a population of 1124. Questionnaires were used to collect data while analysis was done using descriptive statistics. Study findings showed that in spite the fact that students were aware of the TVET institutions, they were not aware of the types of courses offered and entry requirements, a factor that could be contributing to the low enrolment in TVET institutions. The study recommended that TVET institutions market their institutions by advertising courses offered in primary and secondary schools. The literature review candidly shows that number of studies has been carried out have in recent times on student enrolment in TVET institutions. However, none of the studies addressed the relationship between types of courses offered in TVET institutions and student enrolment in TVET institutions. Additionally the approaches, research design, methodology, sampling techniques and sample sizes, study areas and locations were different and borrowed concepts from each other. The current study sought to fill the gap in literature by focusing on the effect of types of courses (type and number of courses) on student enrolment in TVET institutions.

OBJECTIVE OF THE STUDY

To establish the effect of courses types offered in TVET institutions on student enrolment in Bungoma County, Kenya

RESEARCH METHODOLOGY

Correlation research design was the most suitable for the study to test the hypothesis and establish the relationship between the variables. Questionnaires and document analysis were used to collect data. Proportionate stratified, simple random sampling and census were employed for the study. From a target population of 9885, a sample size of 426 respondents was obtained. Proportionate stratified random sampling was used to select 65 TVET institutions from the 82 in the 9 sub-counties in Bungoma County. 65 principals of the sampled TVET institutions were selected by Census and simple random sampling was used to select 2 lecturers from the sampled TVET institutions giving a sample size of 130 lecturers and 3 students from 61 VTCs and 12 from 4(3TTIs and 1 IST), because the TTIs and IST had a higher student enrolment, giving a total of 231 TVET students. As shown in Table 1.

Table-1: Sample sizes of TVET institutions and respondents in Bungoma according to Sub Counties

Sub county	Institutions/Sub County				Sample size of TVET institutions & respondents		
	TTIs & IST	VTCs	Total TVETs	Sampled TVETs	TVET students	TVET Lecturers	TVET Principals
Kimilili	1	9	10	8	33	16	8
Mt. Elgon		8	8	6	18	12	6
Bungoma Central	1	7	8	6	27	12	6
Bungoma West	-	8	8	6	18	12	6
Bungoma South	1	11	12	10	39	20	10
Bumula	1	14	15	12	45	26	12
Bungoma North	-	10	10	8	24	16	8
Webuye East	-	4	4	3	9	6	3
Webuye West	-	7	7	6	18	10	6
Total	4	78	82	65	231	130	65

Source: Author 2019

RESULTS AND DISCUSSION

The effect of the types of courses offered on student enrolment in TVET institutions

The study sought to determine the effect of the types of courses offered on student enrolment in TVET institutions. To achieve the objective, types of courses was measured in terms of types and number of courses offered in TVET institutions on the student enrolment. To determine the types of courses offered in the TVET institutions, responses from 186 student respondents were analyzed and results were cross-tabulated to

facilitate comparison of the levels of enrolment in each of the courses indicated between various gender, age groups and levels of education.

Distribution of Enrolment in Courses offered based on Gender

The results of the cross-tabulation compared student enrolment in the various courses offered categorized in terms of gender. These are shown in table 2.

Table-2: Course crosses gender tabulation

Course	Male		Female		Total	
	Frequency	Percent	Freq.	Percent	Freq.	Percent
Building and Construction	19	100.0	0	0.0	19	10.6
Food and Beverages	0	0.0	12	100.0	12	6.7
Electrical and Electronics	25	86.2	4	13.8	29	16.2
Plumbing	17	73.9	6	26.1	23	12.8
Dress Making	2	5.0	38	95.0	40	22.3
Welding	14	100.0	0	0.0	14	7.8
Mechanical Engineering	22	100.0	0	0.0	22	12.3
Fashion	4	33.3	11	66.7	15	6.7
Hair Dressing	0	0.0	12	100.0	12	4.5
Total	103		83		186	100

The results of Table 2 indicate that of the 186 students who responded, 40 students representing 22.3% were enrolled in the dress-making course, 29 representing 16.2% were enrolled in Electrical and electronics, 23 (12.8%) were enrolled in plumbing, 22(12.3%) were enrolled in Mechanical Engineering, 19 (10.6%) were enrolled in Building and Construction while 14(7.8%) were enrolled in Welding. Food and Beverages just like Fashion had a representation of 12 students each representing 6.7%. Hair Dressing had 8 students which was just 4.5% of the study sample. This implies that majority of the students in TVET institutions were enrolled in the dress making course. Further the results from Table 2 compared in terms of gender and the courses pursued. Building and

Construction had 19 males and 0 females, Electrical and Electronics 25 males and 4 females, Plumbing had 17 males and 6 females and Mechanical Engineering had 22 males and 0 females, were dominated by males while the courses: Food and Beverages had 0 males and 12 females, Dress Making had 2 males and 38 females, Fashion design had 4 males and 11 females and Hair Dressing had 0 males and 12 females were dominated by female students. The results indicate that STEM courses were majorly being pursued more by males than females.

The findings presented in Table 2 agree with Khaguya [2] who found that psychological factors influenced the enrolment. The findings show that the

majority of the respondents indicated that technical courses are masculine and are meant to be pursued by boys. Although Khaguya [2] supported the current study, the main limitation is that the study used a case study design and generalizability of the findings could be done with a lot of caution. The researcher opines that introducing county-relevant courses in TVET institutions in Bungoma can lead to increased enrolment. Agribusiness oriented courses are suitable for the County given its dependence on farming for food security and youth employment. For example, Matili TTI, Kisiwa TTI, Sangalo Institute of Science and Technology all of which are fully equipped with state of the art workshops would be coordinated to provide skills and to produce parts for assembly or

repair for the agricultural sector including tractors, ploughs, irrigation equipment, driers, hoes, axes, hammers, high standards but affordable market sheds, street lighting towers, and garbage disposal equipment. Students would be attracted to enrol in such institutions since they will have assurance of marketable skills and job opportunities within the county. Essentially, the TTIs and IST should scale down on irrelevant courses so as to focus on production and manufacturing courses.

Distribution of Courses offered based on Age

The study applied cross-tabulation to compare student enrolment in TVET institutions in Bungoma County, Kenya in the various courses offered categorized in terms of age. These are shown in table 3.

Table-3: Course crosses age’s tabulation

		Age			Total
		15-20	21-30	Above 30	
Course	Building and Construction	7	12	0	19
	Food and Beverages	5	6	3	14
	Electrical and Electronics	9	20	0	29
	Plumbing	16	9	0	25
	Dress Making	20	15	6	41
	Welding	7	8	0	15
	Mechanical Engineering	7	15	0	22
	Fashion Design	0	4	8	12
	Hair Dressing	4	5	0	9
Total	75	94	17	186	

The results in Table 3 indicate that, of the 19 students taking building and construction majority of them (12 out of 19) were between 21 and 30 years.

For food and beverages (5 out of 14) were in the age group 15-20 years, 6 were in the age group 21-30 years while 3 were above 30 years. For those taking electrical and electronics, majority (20 out of 29) were in the 21-30 age group while those were pursuing plumbing majority (16 out of 25) were in the 15-20 age group. Most of the students taking Dress making were in the 15-20 age groups while most of those taking

mechanical engineering were in the 21-30 age group. The results indicate that majority of those joining TVET institutions in Bungoma County were in the 21-30 years age group. This is in agreement with government policy on age suitable for admission to TVET institutions [1].

Distribution of Courses offered based on Level of Academic qualifications

Student enrolment in the various courses offered in the TVET Institutions was compared on their level of education. These are shown in table 4.

Table-4: Student enrolment based on their level of education

		Education Level			Total
		KCPE	KCSE	Diploma	
Course	Building and Construction	11	8	0	19
	Food and Beverages	11	0	3	14
	Electrical and Electronics	16	13	0	29
	Plumbing	3	22	0	25
	Dress Making	23	18	0	41
	Welding	9	6	0	15
	Mechanical Engineering	9	13	0	22
	Fashion	9	3	0	12
	Hair Dressing	4	5	0	9
Total	95	88	3	186	

Source: Field Data (2019)

The results presented in Table 4 showing the analysis indicate that 95 students representing 51% had KCPE qualification. While 88 (47.3%) had KCSE qualification and 3 (1.7%) had a qualification higher than basic education. This implies that majority of the students enrolled in TVET institutions in Bungoma County had the basic education.

Level of Enrolment based on the number of courses offered.

To establish whether the student enrolment was a function of courses offered, first, the level of enrolment based on the number of courses offered in the various institutions was established together with corresponding descriptive statistics then later One-Way ANOVA was used as shown in Table 4 and Table 5 respectively.

Table-5: Level of Enrolment Based on Number of Courses Offered

Number of Courses Offered	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
2.00	2	105.50	9.192	6.500	22.91	188.09
3.00	2	36.50	10.607	7.500	-58.80	131.80
4.00	3	86.00	73.539	52.000	-574.72	746.72
5.00	4	85.00	45.658	22.829	12.35	157.65
6.00	12	90.83	40.294	11.632	65.23	116.43
7.00	11	81.91	45.214	13.632	51.53	112.28
8.00	2	60.00	84.853	60.000	-702.37	822.37
9.00	6	140.17	160.138	65.376	-27.89	308.22
10.00	3	93.00	61.441	35.473	-59.63	245.63
11.00	3	39.33	12.583	7.265	8.08	70.59
12.00	3	271.00	203.133	117.279	-233.61	775.61
17.00	1	640.00
21.00	1	1069.50
Total	55	140.67	216.311	29.167	82.20	199.15

Source: Field Data (2019)

The results of the analysis in Table 5 indicate that the mean enrolment for TVET institutions which offered 2 courses was 105 students, mean enrolment for those that had 3 courses was 36, mean enrolment for those with 4 courses was 86, mean enrolment for those with 5 courses was 85 while the mean enrolment for those TVET institutions which offered 6 courses was 90. The mean enrolment was 81 for those institutions that offered 7 courses, 60 for those that offered 8 courses, 140 for those that offered 9 courses, 93 for those that offered 10 courses, 39 for those that offered 11 courses, 271 for those that offered 12 courses, 640 for those with 17 courses and 1069 for the one that

offered 21 courses. The results show that student enrolment was to a large extent higher in TVET institutions that offered more courses than those that offered fewer courses.

One- Way ANOVA Test Results for Difference for Levels of Enrolment based on the Number of Courses

To determine whether this difference in average enrolment in the TVET institutions based on the number of courses offered was statistically significant, a One-Way ANOVA test was conducted, and the results are shown in table 6.

Table-6: One-Way ANOVA Test Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2226292.533	13	171253.272	23.374	.000
Within Groups	300395.576	41	7326.721		
Total	2526688.109	54			

Source: Field Data (2019)

The results in Table 6 indicated that there was a statistically significant difference in the levels of enrolment based on the number of courses offered by the TVET institutions, as determined by One-Way ANOVA ($F_{13,54} = 23.374$, $p = 0.000$). This implies that the null hypothesis which stated that number of courses offered in TVET institutions has no effect on the level of enrolment is rejected. Therefore the alternative

hypothesis which states that the number of courses offered in TVET institutions has a significant effect on the level of enrolment was accepted.

The results in Table 6 concur with Kupsoboi [9] who found that in spite the fact that students were aware of the TVET institutions, they were not aware of the courses offered and entry requirements, a factor that

could be contributing to low enrolment in TVET institutions. However, the findings of Kupsoboi [9] were limited to only one IST leaving out the other type of TVET institutions to allow for comparison, a gap the study sought to fill. The researcher also disagrees with findings in Table 6 and is of the opinion that a large number of courses in TVET institutions does not necessarily result in an increased student enrolment.

Degree of correlation between the number of courses and student enrolment

Correlation analysis was done to determine the degree of the correlation between the number of courses offered by the TVET institutions and their levels of enrolment. The results are presented in table 7.

Table-7: Degree of correlation between the number of courses and student enrolment

	Correlations	Total Enrolment	No. of courses
Total Enrolment	Pearson Correlation	1	.757**
	Sig. (2-tailed)		.000
	N	55	55
No. of courses	Pearson Correlation	.757**	1
	Sig. (2-tailed)	.000	
	N	55	55

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2019)

Table 7 shows the correlation between the number of courses offered by the TVET institutions and the level of enrolment which yielded a Pearson Correlation coefficient of 0.757 indicating a very strong positive association between the study variables. The results indicate that if the TVET institutions increase the number of courses they offer, they will increase the level of student enrolment. The findings in Table 7 are supportive of the arguments raised by the Human Capital Theory, which suggests that when governments offer training for the development of skills and knowledge to its subjects, they are able to benefit from social inclusion. It can be argued that by failing to offer sufficient and attractive courses, TVET institutions by extension deny young people the opportunity to integrate themselves into the job market thus achieving social inclusion [10-12].

These findings in Table 7 seem to contradict the Kenya Government in its policy pronouncement in Sessional Paper No. 1 of 2019 [1] which has identified the important role of TVET in driving economic growth. Though emphasis is on promoting access, equity, relevance and quality in TVET, the policy does not give a pin point strategy to achieve increased enrolment in TVET institutions by improving and expanding the range of courses offered or otherwise. Evidence from this study suggests that there are several TVET institutions in Bungoma County which offer similar but few courses resulting in low student enrolment in each institution probably due to limited course choice. This situation can be remedied by reducing the number of TVET institutions and by so doing amalgamate resources to be utilized in few institutions offering a wider range of courses, hence increasing enrolment to a large extent through attracting more students.

CONCLUSION

The study sought to investigate the effect of the number of courses on student enrolment in TVET institutions in Bungoma County. The results analysis indicated that the STEM courses were majorly being pursued by males than females. Further the study established that there was a statistically significant difference in levels of enrolment based on the number of courses offered by TVET institutions, as determined by the One Way ANOVA ($F_{13,54} = 23.374$, $p = 0.000$). The results were reinforced by the Pearson Correlation coefficient of 0.757 indicating a very strong positive association between the number of courses offered by the TVET institutions and their level of student enrolment. The study concluded that the type and number of courses offered by a TVET institution determines the number of students enrolled in that institution.

POLICY RECOMMENDATION

On the types of courses offered in TVET institutions the study recommends that government aligns the curriculum offered in TVET institutions to the needs of the stakeholders and the job market.

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