

Influence of the Mode of Training on the Level of Satisfaction of Marine Engineering TVET Graduates from the Coastal Region of Kenya

Omariba Boniface^{1*}, Simiyu John¹ and Dimo Herbert¹

¹University of Eldoret

*Corresponding author email: bonsomarian@gmail.com; Phone: +254 725 605 282

Received: 28th July, 2023

Published online: 22nd September, 2023

Abstract

The Government of Kenya has instituted rapid and far reaching reforms in the TVET sector since 2010. Recently; expansion of the marine sector has created a demand for increased manpower in the field of marine engineering. The government of Kenya has put up institutions to offer this line of training. In terms of exposure to workplace-based learning, there are three competing modes of technical training in Kenya-the apprenticeship, modular and regular programs. This study assessed how each of the three modes of training influences the level of satisfaction of graduates of marine engineering programs from TVET institutions in the coastal region of Kenya. The study was anchored on the theory of intuition. Research design adopted the process of descriptive survey with a quantitative approach. The study area was the coastal region of Kenya. The target population was 425 marine engineering students who have spent 6 months since course completion. The study sampled out 243 graduates. The research instrument was a questionnaire. Respondents were categorized by gender and the three modes of training; modular; apprentice and regular programs. Analysis was conducted using a chi-square homogeneity model at 5 percent level of significance and 2 degrees of freedom and was run on SPSS. The hypothesis that all modes of training had an influence on the level of satisfaction of TVET students was proven. The major finding was that students were satisfied with the various modes of training as currently formatted and implemented. There is no need for the government to take extraordinary measures to restructure the programs. However, graduates universally complained of the insufficient manner in which information was provided on jobs, careers and general counseling and guidance. Further research should be done to establish how best colleges could improve information services on prospective careers. Future research should include larger samples.

Key words: Modes of training, level of satisfaction, marine engineering TVET programs, prospective career.

1. INTRODUCTION

In modern scientific, technical and socioeconomic conditions, the main requirement for professional training of a specialist- is to guarantee the formation of a clearly defined level of professional competence (Mazlitdinova et al, 2019). Such competence is necessary in securing livelihood in a highly competitive job market (ILO, 2012). Many countries consider TVET training as the panacea for economic development and unemployment reduction (MoE, 2013). The United Nations has outlined sustainable development goals (SDG), which must guide the economic endeavors of all member states. Goal number four of the SDGs is on universal quality education and training for decent employment. The SDG 4 (Sustainable Development Goal Number 4), reinforces the role of TVET as a critical contributor towards the realization of the wellbeing of a nation, while ensuring that no one is left behind (MoE, 2018; ILO, 2012).

In order to respond to the call to make TVET programs more relevant to current and future trends in industry, governments all over the world are diversifying their modes of TVET training. Three key TVET training models have taken shape in the past 30 years that the United Nations SDG campaign has been active; the regular TVET programs, the modular programs and the apprenticeship programs

In the regular TVET program, a student is required to undertake a full course required for the award for a specific vocational qualification. In Kenya, a diploma student in marine engineering would be required to train for three years followed by a single session of industrial attachment towards the end of the program. Under the regular program, all academic units that are required to have been taken to earn acceptance by the relevant professional body, are offered and must be passed. The regular program is considered to confer greater social prestige and opportunities for further education (NCVER, 2002).

In the modular programs, vocational training is split into smaller packages comprising specific skills or competencies. Training for each competency takes a fraction of the time that would be required to attain the full vocational qualification. Under the modular program emphasis is on attaining job readiness in the shortest time possible. A marine engineering trainee in the modular program may enroll for welding and spend three months to acquire competency in this skill. Such a trainee is then ready to take up employment in the marine workshops as a welder. The student can continue with the rest of the training while under employment. If after many years, the student has undertaken enough modules to earn a diploma in marine engineering, the qualification is awarded by the TVET curriculum development, assessment and certification council (TVET-CDACC) (GoK, 2014).

In the apprenticeship program, trainees are recruited by prospective employers. Training is done on the job; by the process of workplace-based learning (Barber, 2003). Trainees are assigned mentors and supervisors in the work environment who should be responsible for imparting skills and relevant

knowledge to the apprentice. For any required academic units, trainees are attached to a regular TVET institution where they undertake modular courses in the relevant area (NCVER, 2002). Such students are deployed to a TVET institute by the employer to undertake a specific modular course within a specific period and return to the workplace for continued training thereafter. A few large organizations have TVET institutes which provide the academic courses for their apprenticeship students. This is the case with the Kenya ports authority, the Kenya navy and the African marine and general engineering company limited (AMGEC Co LTD).

On the Kenyan scene, Karuru and Nyago (2014) have reported that the introduction of modular system of training has been met with low student enrolment. They argued that while student enrolment in the regular programs remained high, the number of TVET students enlisting for modular programs was below expectation. They attributed this poor enrolment to factors external to the TVET institutes. Some of the factors to blame included; national examination policy; logistics and the structure of modular curricula. They recommended that technical institutes be empowered to examine modular courses and issue certificates, accordingly. They also urged for a strengthening of the links between the TVET sector and industry to facilitate collaboration in training. This collaboration might prove particularly important for industry workers who need to upgrade their skills through modular training. The latter approach has been successful in more advanced economies such as Australia (NCVER, 2002).

A study by the National center for vocational education research (NCVER) of Australia found no important difference in employability between modular students and students of the regular program (NCVER, 2002). However, modular students were more concerned with the fact that employers found their qualifications difficult to trust, because it did not involve coverage of all requisite academic courses. In the United Kingdom, apprenticeship program graduates have found it difficult to gain acceptance in the relevant professional bodies (Wainaina, 1989). This has restricted their employment opportunities to the marine sector employers who have provided them with training. In France, the government had to come up with a blended system of apprenticeship training so as to guarantee local and international professional acceptability for their marine engineers. The blended system ensures students undertake all requisite academic units alongside their workplace-based training (Wainaina, 1989).

Marine engineering is rapidly gaining importance in Kenya because of a recent expansion in national and regional maritime activity. Kenya has commissioned a second port in Lamu and expanded the port of Mombasa. Apart from intensifying marine engineering activity in Kenya, this will do the same for the East African region by increasing the number of coasting vessels. Coasting vessels are those that ply their trade exclusively along the local or regional coastline. They do not venture into deep sea long

distant voyages [Wainaina, 1989]. Such vessels are likely to rely almost exclusively on locally sourced marine engineers and technicians. These developments have resulted in an increased demand for well trained and industry ready marine engineering technicians and engineers.

Globally, ILO (2012) and UNESCO (2017) have reiterated that the only way to ensure quality and relevance in technical education is to put emphasis on workplace-based learning. However, it is not clear if the newly instituted workplace-based learning measures are bearing fruit. It must also be noted that prior to the reforms in technical education, there was an apprenticeship system of marine engineering training which was quite effective (Wainaina, 1989). The system was based on the stipulations of the department of trade and industry (DTI) of the United Kingdom. This system of marine engineering training was largely industry centered.

Recent reorganizations instituted by the government of Kenya in the TVET sector, marine engineering training included, may have undermined this highly effective mode of technical training .This study will seek to determine how the expanded industrial attachment programs put in place as part of the national reorganization initiative are influencing the industry readiness of technical trainees; and, whether it constitutes an adequate substitute for the apprenticeship programs it may replace or compete with.

Although it is accepted that workplace-based learning by itself does not constitute an adequate formal training program, it forms an important constituent of most training regimes. The purpose of any workplace-based learning (apprenticeship) or industrial attachment, where apprenticeship is not possible, is to provide the learner with practical technical skills.It has also been defined as the ability to diagnose a technical problem, prescribe a procedure for solving it and carryout that procedure, resulting in a solution to the defined problem (Anderson et al.1995).

While some may hold that a simulated workplace environment such as a school workshop or laboratory may be adequate to teach practical skills, the process of learning by doing works best in the real workplace (industry) environment (Anderson et al., 1995). According to Carl Rodgers (1961; 1983), learning by doing is a powerful method of skill acquisition because it is self-directed and involves experiential learning. Experiential learning has been defined as learning by going through the challenges of the actual work environment. Because of the value of industrial attachment as an opportunity for technical trainees to acquire workplace experience during their college education, TVET trainers have an interest in the way learning occurs during industrial attachment.

Karuru and Nyago (2014) reported that the newly instituted modular mode of technical training in Kenya has been with low levels of student enrolment. They blamed the structure of the modular curricula, among other challenges. Other workers have raised concern about the inability of professional engineering bodies to accept graduates who have undergone both modular and

apprenticeship training (Wainaina,1989). In other countries such as Australia where modular programs and apprenticeship have been in place for much longer, no significant difference has been noted between the regular, modular and apprenticeship modes, in terms of their level of acceptability to students. Yet, the problem of low enrolment continues to bedevile modular programs. There is a need to find out exactly what is causing the low enrolments in recently introduced modes of TVET training in Kenya. This study will assess the comparative level of satisfaction of TVET graduates with the various modes of training in order to determine if anyone of them is unpopular among student clients. The government might then be advised on where and how to institute further reforms.

2. METHODOLOGY

The study adopted a descriptive survey design approach. Respondents were asked if they were satisfied with a number of services usually offered by TVET institutes to trainees. Questions were framed to assess their level of satisfaction with the following services:

1. Teaching and inspection
2. The training processes
3. Equipment and resources available for training
4. Accessibility of training venues
5. Efficiency of administration and information services
6. Effectiveness of student support services
7. Their general opinions on the overall quality of training

In this study, opinions of graduates of the three modes of training as differentiated by gender were sort on their level of satisfaction with their mode of training in so far as it had impacted their livelihoods six months after completion of training. The respondents were sourced from among graduates of TVET programs in institutes within the coastal region of Kenya. A descriptive survey design was found appropriate for this study.

2.1 Target population

The target population of the study was 425 individuals, who according to statistics had completed TVET courses in the various modes of training six months before October, 2022; these people sat their various examinations in March, 2022. This number included; 94 apprenticeship program graduates; 251 regular program graduates; and 80 modular program graduates. The target institutions included all those offering marine engineering programs in the coastal region through any of the three modes of training. Among these were; the Kenya coast national polytechnic (KCNP), the bandari maritime academy (BMA), technical university of Mombasa (TUM). However, apprentice from African general engineering company (AMGEC Co LTD), The Southern engineering company LTD, Kenya Ports Authority and Kenya Navy were from the institutions identified in table below.

Table 1: Target population

Institution	Modular	Regular	Apprentice	Total
TUM	-	207	24	231
KCNP	50	-	10	60
BMA	30	44	60	134
Total	80	251	94	425

2.2 Sampling techniques

The sample size determination formula of Krejcie and Morgan (1970) was applied to arrive at the calculated sample size. This was followed by a simple random sampling process to arrive at the actual list of respondents. The college registration numbers of the graduates or their employment numbers as obtained from the TVET institutes and apprenticeship centers respectively, were written on a piece of paper. The pieces of paper were then folded and placed in a bowl. This was followed by thorough shuffling of the contents of the bowl. The researcher then picked a piece of paper at a time, without replacement, followed by further shuffling, until 66, 75 and 152 registration numbers had been picked for modular, apprenticeship and regular programs, respectively. Names of students whose registration numbers were picked formed the list of student respondents.

2.3 Sample size determination

The target population of marine engineering students was large enough to justify sampling. The sample size determination formula was therefore only applied on the 80 modular, 94 apprenticeship and 251 regular program graduates, respectively.

The formula of Krejcie and Morgan is given as:

$$n = \frac{X^2 * N * P(1 - P)}{(ME^2 * (N - 1)) + (X^2 * P * (1 - P))}$$

Where

n=Sample size

X^2 =the table value of chi-square for 1degree of freedom at the confidence level (95%)
=3.841

N=Population size (80 modular, 94 apprenticeship, 251 regular program graduates, respectively).

P=Population proportion (.50 in the table)

ME=Desired margin of error (expressed as a proportion=0.05)

$n=3.841 \times N \times 0.5(1-0.5) / [0.05 \times 0.05(N-1) + 3.841 \times 0.5(1-0.5)]$

n= modular, apprenticeship and regular graduates to be sampled for the study

Table 2: Sample size table

Mode Of Training	Number of Students	
	Population	Sample
Modular	80	66
Regular	251	152
Apprenticeship	94	75
Total	425	293

2.4 Research instrument

The study employed one type of data collection instrument: a questionnaire. Both open ended and closed ended questions were used in the questionnaire. The questionnaire was applied to gather data from the graduates of modular, apprenticeship and regular programs who had left college six months earlier.

3.0 RESULTS AND DISCUSSION

3.1 Social demographic information

There were more women than men in the higher age brackets (i.e. above 45 years). Women between 45 and 50 years comprised 62 percent of the total. Women above 50 years comprised 87 percent of the total. A disproportionately large number of respondents between 25 and 40 years were men. Men made up 79 percent of the respondents aged between 25 and 40 years. The table below shows the distribution in terms of age and gender. Respondents of all age categories were represented. The old age brackets were perceived to accommodate those who significantly opted to enroll TVET programs so as to secure promotions. At this age category, female dominated over men which may have implied gender sensitivity campaigns to encourage young female students to equally compete with their male colleagues.

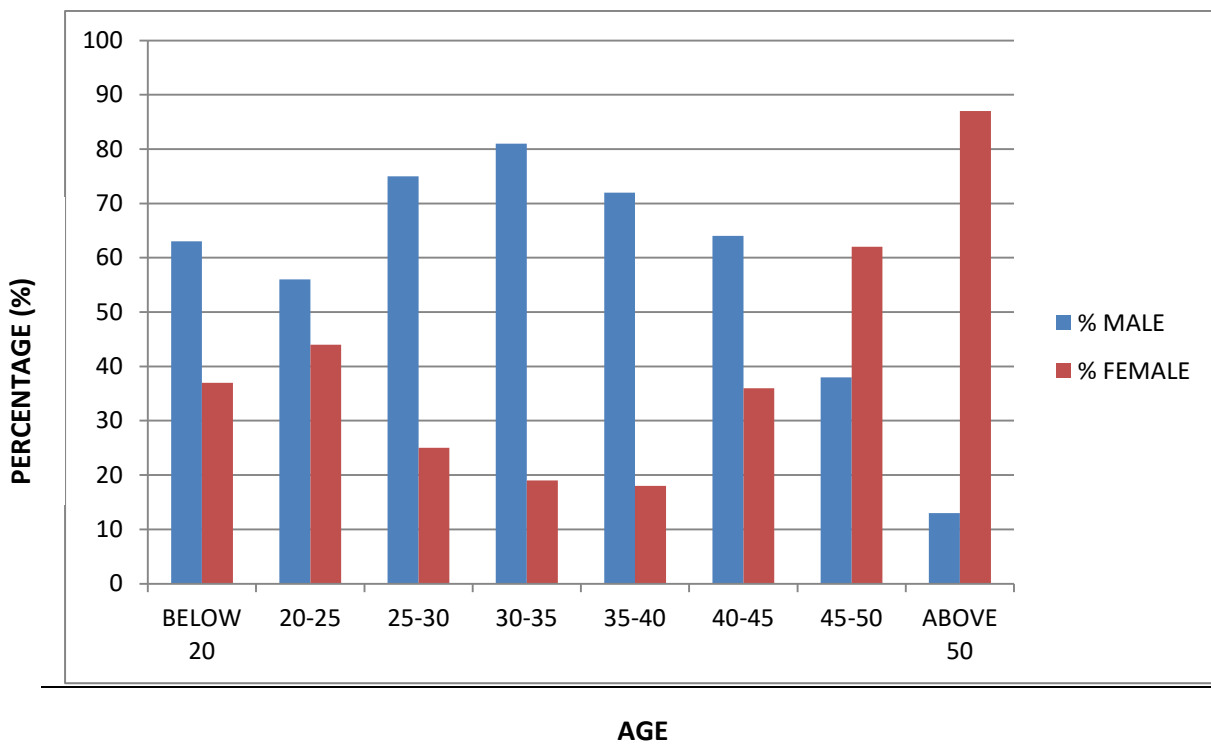


Figure 1: Distribution of respondents by age and gender.

3.2 Descriptive data analysis

Data was collected on the effectiveness of TVET training programs in helping graduates attain their vocational goals. About 89 percent of those who had enrolled for TVET training because their current employment demanded it reported that they had attained their goals. An estimated 87 percent of those who had enrolled to acquire extra skills for the current job said they had attained their goals. For those who hoped that their training would help them change careers, only 42 percent said they had attained their goals. Of those who had hoped to better their job performance or earn a promotion, 56 percent said they had achieved their aims. For those who had hoped to use their TVET training to get a job or start a business, only 49 percent had attained their goals. All the respondents were involved in the study six months after completion of college. The table below shows the responses for the whole group.

3.3 Effectiveness of TVET programs

49.3% of the respondents admitted that TVET training had helped them to get jobs or start businesses. For any expectation of any enrolled trainee is to achieve the best after the training. This is perceived to be a significant query peers seek from the graduates before making a decision on a particular course during enrollment.

41.5% of the respondents expressed their hope of trying different career for better expectations. In contrast, 34.8% admitted that they had not attained their goal hence an indication that change of career could not guarantee automatic job placement.

Moreover, 55.7% of the respondents felt satisfied in attaining their goals with respect to job promotions. Most industries are perceived to sponsor or encourage their workers to upgrade their skills. Similarly, 88.7% acknowledged their satisfaction of achieving their goals since it was a job requirement. This indicated clear concern to avoid layoffs on ground of incompetency.

Additionally, 87.1% of the respondents attained their goals that defined their aim of seeking extra skills. Skill upgrading may be perceived as a way of enhancing conformity to global technological changes. Similarly, global best practices should be incorporated to provide models for benchmarking for local standards and practice and make the training globally competitive (Katam & Otieno, 2021)

In average, 64.5% of the respondents their respective goals where male respondents indicated 53.5% and females 46.5%. Table below shows the effectiveness of TVET programs in helping graduates achieve their goals.

Table 3: Effectiveness of TVET programs in helping graduates attain their goals

What was your vocational reason for joining TVET?	Did you attain your goal?			Total (%)
	Yes (%)	No (%)	Not Sure (%)	
To get a job/or my business	49.3	35.8	14.9	100
To try a different career	41.5	34.8	23.7	100
To better my job or earn promotion	55.7	28.6	15.7	100
It was a requirement of my job	88.7	7.9	3.6	100
I wanted extra skills for my job	87.1	7.2	5.7	100
Average	64.46	22.86	12.72	100

On the whole, apprenticeship graduates showed the highest level of satisfaction (69 percent), followed by regular graduates at 67 percent. Modular graduates had the least satisfaction rate at 63 percent. Respondents were happiest with the way trainers had mastered subject content. Apprenticeship group came first with 76 percent satisfaction, followed by modular with 73 percent and regular with 72 percent. Respondents were most unhappy with the way student support services were provided by their colleges. Availability of information about jobs and careers at 38 percent for all the three modes of training and guidance and counselling services at 36 percent for modular,38 percent for regular and 37 percent for apprenticeship graduates, respectively. Their responses are summarized in the table 3 below.

Table 4: TVET Programs Graduates' Level of Satisfaction

How they were satisfied with:	Modular (%)				Regular (%)				Apprentice (%)			
	Yes	No	Not Sure	Total	Yes	No	Not Sure	Total	Yes	No	Not Sure	Total
Teaching/ inspection	62.4	4.1	33.5	100	62.2	2.5	35.3	100	65.3	4.5	30.2	100
The training	55.7	4.4	39.9	100	55.2	4.6	40.2	100	48.4	3.5	48.1	100
The equipment and resources	59.6	5.4	35.0	100	55.0	5.4	39.6	100	57.6	5.1	37.3	100
Access to training avenues	59.4	5.2	35.4	100	60.3	3.8	35.9	100	64.8	3.8	31.4	100
Administration and information	44.3	7.9	47.8	100	48.9	6.8	44.3	100	49.0	5.5	45.5	100
Student support and services	36.6	14.6	48.8	100	37.5	11.3	51.2	100	37.5	9.5	53.0	100

3.4 Influence of the modular system on satisfaction level

Over 50 percent of the modular respondents reported that they were satisfied with their mode of training. However, the graduates felt satisfied with the mastery of subject content by their tutors. 55% of respondents felt satisfied with content relevance with respect to industry practice. Indeed, the combination of lack of human resources and teaching resources has a magnifying effect, as effective teaching of large classes to a large extent depends on audio-visual and other equipment in classrooms, and other forms of virtual learning and library facility to ensure individual and group learning outside of formal classes (Allais 2014). For this mode of training, 51.7% of the respondents reported that the training was useful for job prospects. 55.9% of the respondents in this category reported satisfaction on the value of money used on training program. On the other hand, respondents were dissatisfied with the manner in which student support services were provided. They singled out information on jobs and career and general guidance and counseling as being of very unsatisfactory quality. Modular respondents were on average in terms of satisfaction level and ranked second among the three groups of program graduates.

3.5 Influence of the regular system on satisfaction levels

Just like their modular colleagues, over 50 percent of the regular respondents reported that they were satisfied with their mode of training. Similarly, 72.2% of the respondents reported that the level of satisfaction with the mastery of subject content by their tutors. 49.7% of the respondents which is less than 50% indicated their satisfaction on quality of equipment available for practical skills. The action to date has been largely in the realm of 'quality assurance' as opposed to 'quality enhancement' (Brewis & McCowan 2016; Odhiambo 2014). On the other hand, respondents were dissatisfied with

the manner in which student support services were provided. They singled out information on jobs and career and general guidance and counseling as being of very unsatisfactory quality. Regular respondents were on average, second to the apprenticeship group in their level of satisfaction.

3.6 Influence of the apprenticeship system on satisfaction levels

Apprenticeship programs were found to induce a much higher level of satisfaction than any of the other two modes of training. Alongside other graduates, 75.8% of the respondents reported satisfaction with the mastery of subject content by their tutors. Consequently, respondents acknowledged methods of training balance between classwork and practical's projected satisfaction by 63.0% and 58.1% respectfully. As viewed by Schendel (2016), it is not enough for academic departments to adopt progressive pedagogical reforms, without a deeper process of transformation of lecturers' understandings and cultures of practice. This implies that students should have confidence on their trainers based on practical experience.

On the other hand, they showed dissatisfaction with the manner in which student support services were provided. They singled out information on jobs, career, general guidance and counseling as being of very unsatisfactory quality.

Inferential data analysis

The data was then organized in a chi-square contingency table to facilitate inferential analysis through the chi-square homogeneity test model. The test hypotheses were as follows:

H₀₁: Graduates of the three modes of training of both male and female gender are homogeneous in so far as their level of satisfaction is concerned.

H₁₁: Graduates of the three modes of training of both male and female gender are not homogeneous in so far as their level of satisfaction is concerned.

The absolute numbers of respondents providing affirmative answers to the question, “*Are you satisfied overall with your mode of TVET training?*” were used to construct a contingency table. Table 5 below shows the chi-square contingency table for the data.

Table 5: Chi-square contingency table

No. of Agreements[N]	Modular	Regular	Apprentice	Total
Male	19	51	31	101
Female	11	28	10	49
Total	30	79	41	150

From the frequency table was obtained the table of expected frequencies shown below.

Table 6: Expected frequencies

S/N	O	E	$[O-E]^2$	$[O-E]^2/E$
1	19	20.20	1.44	0.0713
2	51	53.19	4.7961	0.0902
3	31	27.61	11.4921	0.4162
4	11	9.8	1.44	0.1469
5	28	25.81	4.7961	0.1858
6	10	13.39	11.4921	0.8583
Total				1.7687

**0.05 level of significance

*** $\alpha = 0.751$

Calculated $X^2 = 1.7687$

$$D.F = [2 - 1] [3 - 1] = 2$$

At 0.05 level of significance and 2 degrees of freedom, the tabulated value is $X^2 = 5.99$. The calculated value at 1.7687 which less than the tabulated value; the null hypothesis is accepted. Graduates of the three modes of training of both male and female gender (are homogeneous) in so far as their level of satisfaction is concerned. They are all satisfied with their various modes of training.

Hypothesis testing on the influence of modes of training on satisfaction

A chi-square homogeneity model was used to test the hypothesis that all the three modes of training had significant influence on the level of satisfaction experienced by TVET graduates. At 95 percent confidence level and 2 degrees of freedom, the calculated chi-square value was less than the tabulated value. The null hypothesis was therefore accepted.

The main research problem was to understand the cause of low student enrolment in certain newly introduced programs, particularly modular programs. It was presumed that if the level of satisfaction with the modular program was low, then it should explain the poor response by students. The homogeneity of satisfaction among graduates of these programs reflects a lack of course discrimination among graduates, in terms of quality and relevance. This implies that what is causing the low enrolment rates is not perceived quality or relevance of the modular programs. Further, there was a general feeling by students across all modes of training that colleges had not been able to effectively relay information to the students regarding career prospects of their chosen modes of training. Graduate respondents also complained that proper guidance was not provided at the time of course selection, so many tended to land in programs they hardly knew anything about. Based on the findings, it may be perceived that the low levels of enrolment are associated with inadequate information regarding newly introduced modes of TVET training. More research needs to be done on the mechanisms the colleges and the government could use so as to be able to deliver career and course information more effectively to clients (students).

4.0 CONCLUSION

This study has revealed that students are generally satisfied with the way trainers deliver subject content. However, they are less satisfied with the quality and availability of practical equipment. Students have expressed a great dissatisfaction with the manner in which colleges handle information on careers and jobs. Again, they feel guidance and counseling is badly handled by the colleges. This study was tailored on the presumption that there are fundamental differences in the quality and manner of delivery of the different modes of training such that prospective students are responding by keeping away from certain programs. It was found out that modular, regular and apprenticeship programs generally induce a high level of satisfaction. There is no need for government to take extraordinary measures aimed at restructuring the various modes of training to encourage student enrolment. The courses are acceptable to students as structure and implemented. What are required are better information services by colleges and government. The government should provide services associated with career guidance. This can be done to enable students make appropriate choices on course selection with informed expectations. The government should consider Marine engineering as one of key area of blue economy and mobilize adequate and relevant resources. This is due to the fact that marine engineering training is college-based under TVET programs. The government should promote the establishment of TVET linked marine engineering industries across the country provide job opportunities to graduates. Education and experience of the trainers should match the requirements of TVET guidelines in line with marine sector. This can be done through establishment of Centres of excellence that will train competent marine trainers to steer best practices in marine engineering and other activities in the sector. It recommends that more research be done to determine how best to improve college services associated with guidance, employment opportunity and career information and general guidance and counseling. It also recommends that future studies on related study to widen scope and involve larger samples.

5.0 REFERENCES

- Anderson et al. [1994]. Espoused theories and theories in use: Bridging the gap. *Unpublished master of organizational psychology thesis. University of Queensland. Queensland. Australia.*
- Dismani, A.[2011]. Challenges facing technical institute graduates in practical skills acquisition in the Upper East Region of Ghana. *Asia-Pacific Journal of Cooperative Education.*
- GoK.[2014].The Kenya National Qualifications Framework Act No.22 of 2014. *Government Press. Nairobi.*
- ILO. [2012].TVET Reform: Design an Inclusive Skills Development Program. *Bangladesh Country Report. Bangladesh.*

- Karuru. and Nyago. (2014). Factors influencing trainee enrolment in modular courses in Technical Training Institutes in Kenya. *African Journal of Education, Science and Technology*.
- Katam, E., & Otieno, D. (2021). A review of technical and vocational education and training institutions' online learning as a response to corona-virus disease 2019 in Kenya. *The Kenya Journal of Technical and Vocational Education and Training*, 96
- Krejcie and Morgan [1970]. *Educational and Psychological Measurement*. No.30, pp.607-610.
- Mazlitdinova et al. (2019). Modular Training system as a Factor of *Improving Educational Process*.
- MoE. [2018]. Education Sector Strategic Plan 2018-2022, TVETA. *Nairobi. Government Printing Press*.
- MoE. [2019]. Sessional Paper No. 1. of 2019. *Nairobi. Government Printing Press*.
- NCVER. (2002). The benefits of modular study in Vocational Education *and Training*. *NCVER. Melbourne, Australia*.
- Odhiambo, (2014) Quality assurance for public higher education: context, strategies and challenges in Kenya. *Higher Education Research & Development*, 33 (5), 978-991.
- Oso, W.Y. and D.O. Onen. [2005]. *A General Guide to Writing Research Proposals and Reports*. *Lake Publishers. Kisumu, Kenya*.
- Rodgers C.R.[1961]. *On becoming a person*. Boston. Houghton Mifflin.
- Sarvela, P.D. and R.J. Mc Dermont. [1993]. *Health education evaluation and measurement: practitioner's perspective*. Brown and Benchmark *Publishers. Madison, WI, WI*.
- Schendel, R. (2016) Constructing departmental culture to support student development: Evidence from a case study in Rwanda. *Higher Education*, 72 (4), 487-504.
- Schon, D.A.[1983]. *The reflective practitioner: How professional think in action*. *New York. Basic Books*.
- UNESCO. [2017]. *Greening Technical and Vocational Education and Training: A Practical Guide for Institutions*. *UNESCO. Paris. France*.
- Wainaina P.M.[1989]. *Marine technical training in Kenya*. *World Maritime University. HTTPs://commons.wmu.se/all. Dissertation /1011*.