

Analysis of Infrastructural Support and Trainer Attributes in TVET Institutions in Kenya

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Abstract

The purpose of this study was to analyze infrastructural support and trainer attributes in Technical and Vocational Education and Training (TVET) institutions in Kenya. TVET is acknowledged as a means of transforming and empowering the youth with skills, knowledge and attitudes to enable them become productive members of the society. The study sought: to establish the qualification of staff, determine training needs of staff, and to establish the status of equipment and physical facilities used for training in selected TVET institutions offering clothing and textile courses. Descriptive survey design was used for the study. The samples included 8 technical institutes and 10 institutes of technology in Kenya offering courses in clothing and textile examined by Kenya National Examination Council. A total of 452 respondents consisting of 250 second year students taking a diploma course in clothing and textile participated in the study. Data was presented in the form of frequency tables, bar graphs, and pie charts. The results showed that the academic staff members were academically qualified; however, there was need for them to upgrade their technical skills. The study also found that there was need for further training for the academic staff in the institutions. On the status of equipment and physical facilities, 172 (86%) of the respondents indicated that the facilities were inadequate. It was recommended that the government should provide additional learning and training equipment to replace the outdated ones. Teachers should also upgrade their skills through further training.

Key words: *infrastructural support, trainer attributes, TVET institutions*

Introduction

In Kenya, as in many countries, education and training is seen as the fundamental pillar for building human resource foundation for socio economic development, and for enhancing the ability to create employment, innovation and wealth (KESSP, 2005). The Government of Kenya has invested heavily and is also well aware of the potential benefits of technical education. This is evident from the policy statements in national agenda and other policy documents (Kenya Vision 2030, 2007; Poverty Reduction Strategy Papers, 2005).

Kenya has set in motion a program to become a middle level income economy and eventually raise its Gross Income per capita by implementing Vision 2030 blue print projects. Kenyan education and training institutions can play a critical role in creating a human resource base that would take science and technology industrialization to the next level of development and thus transform this nation into an industrialized economy.

It is worth noting that TVET sub sector is critical to the development of industry's human resource, high quality training services therefore must be delivered by the sector to enhance its productivity and competitiveness. Highly competitive TVET systems in developing and emerging economies provide much sought after skilled labour that would attract direct foreign investments. It is therefore important to enhance skills of graduates of the TVET systems through provision of quality training services that are markedly enhanced (TVET Report, 2011). ICT integration in TVET must be considered for technological innovations and developments in industry today. This requires trainers and trainees to have the necessary skills to support the use of ICT for teaching and learning. Specialized ICT skills are required in the work place for production and communication, and are seen as an essential complement to traditional content knowledge, in courses such as science, clothing and textile, and engineering (TVET Report, 2011).

Statement of the Problem

Without appropriately skilled employees, technical staff and management, the clothing and textile industry will not be locally and internationally competitive. The objective of TVET is to provide and promote life-long education and training for self-reliance. According to the Kenya policy review (2007), the challenges facing TVET institutions include: inadequate facilities and capacities to cater for graduates of primary and secondary education wishing to pursue TVET. Managing TVET under various government departments has also posed a challenge to the sector leading to disparities in the training standards. To fill the existing knowledge gap, this study was therefore aimed at analyzing the infrastructural support and trainers attributes in TVET institutions in Kenya.

Purpose

Thus the purpose of the study was to analyze the infrastructure, training and trainers' professional capabilities, in order to recommend intervention measures to improve the facilities in place, training and skills development in the institutions.

Objectives of the Study

The following objectives guided the study:

- a) To establish professional qualifications of staff in selected TVET institutions offering clothing and textile courses.
- b) Determining training needs of staff in the selected TVET institutions offering clothing and textile courses
- c) To establish the state of equipment and physical facilities used for training clothing and textile courses.

Literature Review

The Clothing and Textile Industry in Kenya

Kenya's textile and clothing sectors comprise a wide variety of firms in terms of size and age, technology, products, export performance and the export markets they participate in. While formal employment in the industries grew from 18,429 workers in 1976 to 32,425 by 1997, most of the growth occurred in the earlier years. The share of the two industries in total wage employment in the manufacturing sector declined from the 18.6% in 1985 to 14.7% in 1997 (McCormick, Kimuyu & Kinyanjui, 2001).

Market liberalization in the early 1990s is blamed for the decline of textile and clothing industries (McCormick, Kimuyu & Kinyanjui, 2001). It led to flooding of imports of textile products and garments which pushed local producers out of the market. Other factors that led to the sinking of the country's cotton sector are: the increasing use of synthetic fibers and a worsening operating environment in terms of lack of technological advancement, and high operating costs among others (Coughlin, 1991).

Experience at the workplace shows that there is a wide gap between skills imparted to TVET graduates and those needed at the workplace. Practitioners and leader in industry, and indeed governors and managers of TVET institutions, have repeatedly raised a red flag about this widening gap. The fact that most TVET institutions' state of affairs has been traced to capacity and capability at institutional level, inefficient TVET systems, poor training equipment and low funding from government (MOEST, 2005).

Professional Qualification of Trainers in Technical Institutions

When considering growth in technology, the development of human capital is paramount (Fajonyomi, 2007). This view is in line with Ogbazi (1987) who noted that problem of industrial development in Nigeria is that of inadequacy of sufficiently trained human resources and this has been a major constraint on the rate of technological and economic development of the country. The issue of professionalism in teaching has been on course for quite some decades. Scholars argued for the necessity of skilled teachers for effective learning. Ngada in Fajonyomi (2007) emphasized that the success or failure of any educational programme rests majorly on adequate availability of qualified (professional), competent and dedicated teachers. Seweje and Jegede (2005) noted that the ability of a teacher to teach is not derived only from one's academic background but it is based upon outstanding pedagogical skills acquired.

The realization of the national growth in technology as highlighted in the Nigeria national policy on education hinges largely on the quality of the teachers. This view is supported by Nkwodimah's (2003) submission that teacher's quality will inevitably be seen in the citizens tomorrow. Ngada (2008) while remarking on teachers' quality observed that over 80% of respondents viewed teachers as carriers of weaknesses: These weaknesses include, among others, inadequate exposure to teaching practice, poor classroom management and control, shallow subject-matter and lack of professionalism. According to Ajayi (2009), professional qualities of a teacher relate to mastery of the subject matter, sense of organization,

ability to clarify ideas, ability to motivate students, good imagination, ability to involve the students in meaningful activities throughout the period of teaching, management of the details of learning and frequent monitoring of students' progress through a variety of tests. In technical institutions set up, trainers instructional ability and content knowledge in clothing and textile course is therefore perceived to have an impact of students' understanding of the course.

Education and Training

Under education and training, Kenya expects to provide a globally competitive and quality education, training and research. It aims to be a regional center of research and development in new technologies. This will be achieved through: (i) integrating early childhood education into primary education; (ii) reforming secondary school curricula; (iii) modernizing teacher training; (iv) strengthening partnerships with the private sector; (v) developing key programmes for learners with special needs, (vi) rejuvenating ongoing adult training programmes; (vii) revising the curriculum for university and technical institutes to include more science and technology; and (viii) in partnership with the private sector, the Government also expects to increase funding to enable all these institutions to support activities envisaged under the economic pillar (Republic of Kenya, 2012).

According to the Ministry of Higher Education, Science and Technology (GoK, 2007), Kenya is characterized by a mismatch between skills acquired through the training programmes and those demanded by the labour market, lack of flexibility of curriculum and lack of clear pathways for technical and vocational advancement. Since independence, there have been several Commissions on education and training such as Ominde (1965), Ndegwa (1971), Mackay (1981) and Koech (2000) that recommended actions with varying implications on skills development. According to GoK (2007), despite the collapse of cotton and textile industries in Kenya, the government, through Vision 2030, has committed itself to revive the industry. Top on agenda in this revival programme includes identifying and developing skilled manpower in TVET institutions.

Status of Physical Facilities and Equipment in the Technical Institutions

The objective of TVET is to provide and promote life-long education and training for self-reliance. According to GoK (2007), the challenges facing training institutions include inadequate facilities and capacities to cater for graduates of primary and secondary education wishing to undertake TVET programmes. Managing TVET under various government departments has also posed a challenge to the industrial sector leading to disparities in the training standards. The lack of effective co-ordination of training policies and the disproportionate production of skilled personnel across the entire economy resulted in mismanagement of scarce resources, duplication of efforts, conflict of jurisdiction, under-utilization of available training facilities, wasteful and unnecessary competition, costly and irrelevant training programmes (GoK, 2007). The immediate task is therefore, to undertake the development of a National Skills Training Strategy and to implement the necessary reforms, along with a legislative framework for a comprehensive TVET system. In the study of Makhoa (2006) on students' performance in clothing and textile, she established that the success of

any education system depends to a large extent on availability, adequacy and quality of teaching/ learning resources and physical facilities. Teaching aids are essential requirements for successful teaching. Material resources are important in curriculum implementation of the syllabus if they are effectively put into use (KIE, 2006). Clothing and Textile being a practical oriented subject, training facilities must be in place for effective TVET programme. According to Nyerere (2009), some of the challenges still facing TVET include inadequate facilities and capacities to cater for the large numbers of those who complete primary and secondary education and wish to undertake TVET courses.

Methodology

Research Design

The study used a cross-sectional survey research design which was carried out in 18 TVET institutions in Kenya comprising of 8 Technical Training Institutes and 10 Institutes of Technology that offered clothing and textile courses being examined by Kenya National Examination Council. The study population comprised of 37 TVET institutions in Kenya and targeted principals, deputy principals, lecturers, technicians and students in the target institutions. There were 36 principals and deputy principals, 148 lecturers, 18 technicians and 492 diploma students in the targeted institutions (242 first year and 250 second year students). The researchers used the multi-stage sampling procedure to select the study participants. According to Mugenda and Mugenda (2003) multi-stage sampling procedure is appropriate where sampling is done at different levels in a hierarchical order. The first stage involved identifying a national sample of all 37 TVET institutions that offered diploma courses in Kenya. The second stage involved identifying 18 TVET institutions that offered clothing and textile courses at diploma level. In the third stage, all the principals, deputy principals, lecturers and technicians in the 18 TVET institutions were selected to participate in the study. The combined staff category comprised a total of 202 respondents (100%). In the fourth stage, all second year students taking clothing and textile courses were selected to participate in the study. The student sample comprised of a target of 250 (50.8%) only 200 (40.6%) responded and 50 (10.1%) students did not submit their filled in questionnaires.

Three types of research instruments were used namely questionnaires, interview schedules and observation checklists. The questionnaire was made up of four sections where section A contained sought general information of the respondents. Section B contained items on qualifications and training. Section C contained items on physical facilities and learning resources. Section D contained questions on methods of teaching. The researcher used the observation checklist to capture features and aspect of the study not addressed by the questionnaire.

A clothing and textile observation checklist was adopted from the ten Flanders Interaction Analysis Categories (FIAC), (1970). These contained lecturer and student related items on teaching methods, questioning techniques, response, talk initiation and silence. The instrument was used to observe both the practical and theory lessons in clothing and textiles with the aim

aim of providing additional data on teaching methods and use of teaching learning resources. Each activity was tallied and the total number of tallies used to determine the strength or the weakness of that activity. Questionnaires were used to gather data from lecturers, students and technicians while the interview schedule was to collect data from the principals and their deputy principals.

Findings and Discussion

Sample Attributes

Distribution of Academic Staff by Highest Academic/Professional Qualifications

The study found that most of the respondents interviewed (58%) had Technical Diploma in Clothing Technology. The study also established that 18% had diploma in clothing and textile and 9% of the respondents had a degree in Textile and Interior Design. From the findings, it can be deduced that even though the academic staff in the institutions studied were qualified they needed additional trainings to upgrade their skills. The findings are presented in Table 1.

In an interview with the principals/deputy principals on the qualification of academic staff in the institutions studied, they stated that their staffs were qualified but they needed additional trainings to upgrade their skills. This they explained that learning was continuous accompanied by changes in the use of technology which requires updating of skills to ensure effective teaching and learning in the institutions. The Technical and Vocational Education and Training TVET Act, 2013 recommends continuation of training for improvement of professional qualifications and updating of knowledge, skills and understanding.

Table 1: Distribution of Academic Staff by Highest Academic/Professional Qualifications

HIGHEST ACADEMIC/PROFESSIONAL QUALIFICATIONS	FREQUENCY	PERCENTAGE
Secondary Education	3	2
Certificate in Clothing and Textile	1	1
Diploma in Clothing and Textile	25	18
Technical Diploma in Clothing Technology	82	58
Diploma in Education	6	5
Graduate in Textile and Interior Design	10	9
Post Graduate in Fashion Design	5	4
Machine Maintenance Course	4	3
TOTAL	142	100

Training Needs of Staff

In this section, the researcher sought to determine whether there was need for staff training in clothing and textile.

Attendance of Skills Upgrading Course

The members of the academic staff were asked to indicate whether they had attended any skill upgrading course. The study found that 98 (69%) had never attended such courses while 44 (31%) indicated that they had. This was implication that there was need for skill upgrading among the academic staff in the sampled TVET institutions. The findings of the study were as presented in Figure 1.

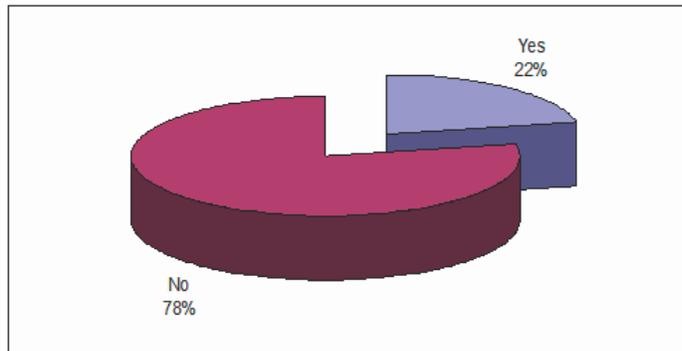


Fig. 1: Attendance of Skill upgrading Course

Those who had attended training reported that they had attended the following courses: technical skills upgrading (22%), entrepreneurship training (12%), technical training (18%), and supervisory management (8%), and machine maintenance (6%), trainer of trainees (5%), machine repair (4%) and senior management (3%).

The Status of Equipment and Physical Facilities - Students' Responses

Sufficiency of Training Facilities

Student respondents were asked to indicate whether the facilities available were sufficient. A majority of 180 (90%) of the respondents indicated that the facilities were inadequate while 20 (10%) indicated that they were sufficient. From the findings of the study, it can be said that the facilities available in the institutions were insufficient.

The respondents were further asked to give explanation for their responses. Those who indicated that the facilities were insufficient (90%) stated that; over-lock machines were inadequate, some machines were out of order, training space was inadequate, breakdown of some machines, inadequate machines and that there were too few tables. Those who indicated that the machines were sufficient mentioned that most of the departmental workshops were well equipped with working machines and that the sharing ratio per machine was normally low (10%).

To test further the sufficiency of training facilities in terms of space, the members of the academic staff interviewed were asked to indicate whether they were comfortable in their work places. A majority of 102 (72%) of the respondents indicated that their work place was fairly congested. A total of 20 (14%) reported that their work places were congested and another 20 (14%) indicated that their work places were not congested. The findings complement the findings by GoK (2005) which revealed that the challenges facing institutions are: inadequate facilities and capacities to cater for students. From the findings of the study, it can be said that most of the institutions studied had fairly congested work places. The findings of the study were as presented in Figure 2

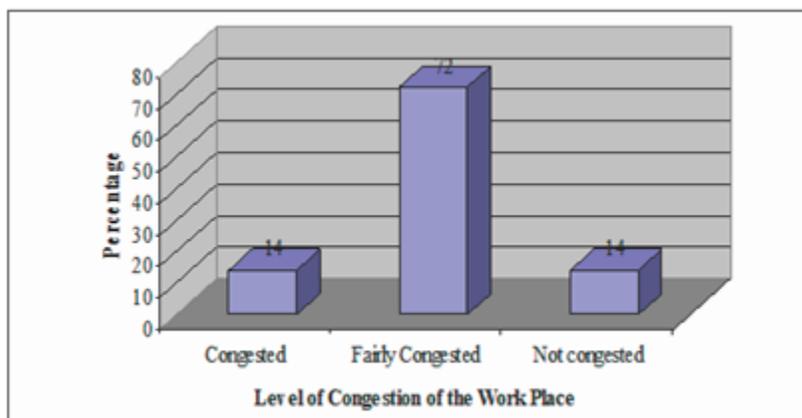


Fig. 2: Congestion of the Work Place

In interviews with the principals and their deputies, they were asked to comment on the status of the general infrastructural support in their Institutions. Most commented that their institutions had outdated infrastructure which needed upgrading and that they had many students in the institutions compared to their capacity in terms of resources and facilities.

Availability of Required Facilities and Equipment

Student respondents were asked to indicate whether all the facilities and equipment required for learning were available. The study found that 172 (86%) did not have all the facilities and equipment required for learning while 28 (14%) had. The results complemented the findings by GoK (2005) which revealed that the challenges facing institutions are: inadequate facilities and capacities to cater for students. The findings were complemented by the findings of a study done by MOEST (2007) which found that that the equipment used in TVET institutions was obsolete. According to Nyerere (2009), some of the challenges still facing TVET include inadequate facilities and capacities to cater for the large numbers of those who complete primary and secondary education and wish to undertake TVET courses.

Students' Responses

To determine the availability of specific facilities and resources, students were asked to indicate the level of availability of different physical facilities in their institutions. They reported that resources such as clothing and textile workshops, needles, drafting papers, sewing threads and pattern transferring tools were available and adequate in numbers.

Table 2: Students' Responses about Availability of Physical Facilities

Facilities and Resources	Available		Available but not enough		Not available		Available and not working or Used		TOTAL (%)	
	F	%	f	%	f	%	f	%	f	%
Workshops	192	96	-	0	-	0	-	4	200	100
Working tables	26	13	162	81	2	1	10	5	200	100
Computer laboratory	1	2	1	2	174	87	2	1	200	100
Stools	10	5	156	78	26	13	6	3	200	100
Sewing machines	70	35	124	62	0	0	6	3	200	100
Iron boxes/ironing	4	2	176	88	12	6	4	2	200	100
Fabrics	112	56	76	38	0	0	10	5	200	100
Fabric cutting shears	0	0	124	62	64	32	12	6	200	100
Tape measures	8	4	152	76	46	23	2	1	200	100
Needles	142	71	46	23	4	2	8	4	200	100
Dressmakers steel pins	8	2	146	73	36	18	12	6	200	100
Seam ripper	8	2	136	68	46	23	12	6	200	100
Bobbins	8	2	130	65	46	23	18	9	200	100
Drafting papers	190	95	0	0	0	0	10	5	200	100
Sewing threads	190	95	0	0	0	0	10	5	200	100
Pattern transferring	192	96	0	0	0	0	8	4	200	100
Storage facilities	20	10	72	36	98	49	10	5	200	100

It was also determined that facilities such as working tables, stools, sewing machines, iron boxes, scissors, tape measures, dressmakers steel pins, seam rippers and bobbins were available but inadequate in numbers for use by students. This encouraged sharing and working in groups even where students were to carry out the exercises individually. Computer laboratories were not available and where they were available, they were not working. From the study findings, it can be said that even though the resources required were available, most of them were inadequate. The findings are as presented in Table 2 above.

Sufficiency of Training Facilities

Student respondents were asked to indicate whether the facilities available were sufficient. A majority of 180 (90%) reported that the facilities were inadequate while 20 (10%) indicated that they were sufficient.

The respondents were further asked to give explanation for their responses. Those who indicated that the facilities were insufficient (90%) stated that over-lock machines were inadequate, some machines were out of order, training space was inadequate, breakdown of some machines, inadequate machines and that there were too few tables. Those who indicated that the machines were sufficient mentioned that most of the departmental workshops were well equipped with working machines and that the sharing ratio per machine was normally low (10%).

Conclusions

In summary of the findings on the set objectives: most of the respondents interviewed (58%) had Technical Diploma in Clothing Technology, 18% had diploma in clothing and textile and 9% of the respondents had a degree in Textile and Interior Design. It can be deduced that even though the academic staff in the institutions studied were qualified there was need for additional trainings to upgrade their skills; All the respondents 142 (100%) in the selected TVET institutions offering Clothing and Textile courses reported that they needed further training. The trainings were required in the following lines: entrepreneurship, degree in clothing and textile, degree in fashion and design, application of ICT in clothing and textile, machine maintenance, technical diploma in clothing technology, technical skills upgrading, and computer aided design and masters in fashion design.

On the status of equipment and physical facilities, 172 (86%) of the respondents indicated that the facilities were inadequate. This was evidenced by the fact that resources such as clothing and textile workshops, needles, drafting papers, sewing threads and pattern transferring tools were available and adequate. On the other hand, facilities such as working tables, stools, sewing machines, iron boxes, text books, scissors, tape measures, dressmakers steel pins, seam rippers and bobbins were available but inadequate. Computer laboratories were not available and where they were available, they were not working. The researcher's checklist for physical facilities, the researcher observed that textbooks were very few in all the institutions that were sampled.

From the findings of the study, it can be concluded that:

The teaching staff in the institutions was academically qualified; however there was need for up-grading of skills. There is need for the academic staff in the institutions studied to upgrade their skills in the use of current technology in clothing and textile. The equipment and physical facilities were inadequate and needed up-grading and more textbook to be purchased for all institution.

Recommendations for Policy and Practice

The following were the recommendations of the study: Lecturers should undergo further training to upgrade their technical skills, which can be done in technical colleges and universities that offer clothing and textile and fashion and design; and the government should provide additional learning and training equipment to replace the obsolete resources.

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