Towards Achieving Vision 2030: An Evaluation of TVET Teacher Education Systems in Kenya

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Abstract

Training of Technical teachers in Kenya is targeted at offering the technical institutes a competent workforce that is able to perform the various tasks honored upon it within their area of specialization. This Study discussed the training acquired by these technicians from Technical Vocational Educational Training (TVET) Institutions vis-à-vis the requirements of the Intuitions syllabi. Areas that was considered was the teaching and learning materials used to train them and the challenges facing them in the field. The study adopted a causal-comparative approach.. Participants were selected by Simple Random Sampling technique. Teacher self- assessment questionnaire was used to obtain teachers' shared perceptions of their knowledge and skills levels and exposure to training equipment/machines. Data from the principals' interview schedule was used to examine technical teacher practices, use of resources and challenges encountered in the running of TTI programs. The study identified five key competencies relevant to Technical Education Teachers out of which subject area competency and communication competency were rated as of essential importance. The study, however, established that training equipment/machinery positively impacted on technical teachers' competencies. The findings of this study suggest that the competence of TVET teachers could be as a result of exposure to training equipment/machinery and not as a result of training.

Keywords: *TVET, TTI*

Introduction

Technical, Vocational Education and Training (TVET) in Kenya is viewed as the kind of education that provides learners with the technical skills that can be used generally in technical fields. In Kenya the localized term, Technical, Industrial, Vocational, Entrepreneurship and Training (TIVET) is used to describe all the programmes under the Ministry of Higher Education, Science and Technology. These programmes are designed to prepare skilled personnel for various positions in industry and the informal sector. Education Sector Policy Overview Paper suggests that the provision of education and training to all Kenyans is fundamental to the success of the government's overall development strategy. The long-term objective of the government is to provide every Kenyan with basic quality education and training, preserve and utilize the environment for productive gain and sustainable livelihoods. The development of quality human resource is central to the attainment of national goals for industrial development.

Education and training in Kenya is governed by the Education Act (1968) and other related Acts of Parliament, including TSC Act, KNEC Act, Adult Education Act, University Act, and various Acts and Charters for universities. However, the Education Act of 1968, and the related Acts are not harmonized, and are no longer adequately responsive to the current and emerging trends in education and training. The legislation governing the sector has, therefore, not kept pace with new developments. Education in Kenya, since independence, has been characterized by changes, often initiated by or emanating from, the political elite of the day. During this period, which spans over four decades, the government of Kenya has addressed the challenges facing the education sector through Commissions, Committees and Taskforces.

As Kerre (2010) has noted, the Kenyan school curriculum has often oscillated from being vocationalized prior to independence and in the 60s, highly academic in the 70s to being vocationalized in the 80's and back to being academic in the late 90s. From the outgoing commissions and their recommendations (some implemented, some ignored with political and/or economic considerations), it emerges that while Technical Education received attention from most of the commissions (Ndegwa, Gachathi, McKay, Kamunge and Koech), implementation on the part of government has been wanting. The case in point is the haphazard implementation of McKay's recommendations without due regard to putting sufficient infrastructure in place (like workshops, equipment and materials), adequate preparation of the teachers to teach the new curriculum, lack of clear policy on the type and nature of TVET to be offered, implementing the programme without first piloting it in order to learn its weaknesses and strengths and hence make adequate preparations for country-wide implementation, and general concentration by government on the provision of general academic education at the expense of Vocational and Technical Education and Training. This, then, calls for inclusion of TVET in the general education curriculum as recommended by UNESCO.

To the public, as noted by Kerre (2010), the image of TVET has been traditionally tainted and often viewed as fit for those who are unable to prosper academically. This has been due to lack of knowledge; for TVET plays such an important role in national development. There is need, therefore, to make TVET both attractive and competitive in the school curriculum so that it becomes a career of choice for the school students for both salaried employment and self-employment. This can be done in a number of ways:

a) Providing seamless pathways for one to progress from lower levels of entry to higher levels of education and training for those with the desire and quest,
b) Making the pay for those in TVET competitive so as to attract more people to it,
c) Making TVET curricula core subjects and examinable at both primary and secondary levels. This will form the foundation and provide continuity at higher levels of training.
d) Government to invest heavily in TVET through provision of adequate and sufficient workshops, modern equipment as sufficient commitment to show that TVET is crucial in national development and in Kenya's industrialization as envisaged in the Vision 2030.

The "casual" treatment government has given to TVET in general, and to Technical Teacher training since the pre-colonial days through independence to date (as discussed in Chapter 2), poses the question: "What is the future of Technical Education in Kenya in the 21st Century?" And what challenges do Trained Technical Teachers face? These two related questions, in the investigator's view, are central to the general nature of the training offered in the technical training institutions in Kenya today. Kenya is aspiring to industrialize by the year 2030. This process largely depends on the quality of technical training offered to trainees in various institutions mandated to provide the training. The curricula these institutions follow, in view of the emerging issues, are aspects of attention that deserve investigation to determine their relevance and effectiveness in producing products who are dependable in making Kenya attain her Vision 2030. Indeed the equipment and machinery used by the training institutions are core aspects that attract attention in establishing the quality of the graduates of these institutions, considering that TVET teachers /trainers are reported to lack the pre-requisite experience and technical competence to prepare the youth for the dynamic 21st century (Kerre, 2010).

Technical Education is seen as a fundamental element of Kenya's new Vision 2030 which aims at a globally competitive and prosperous nation with a high quality of life by 2030. It's recognized that in today's global market, it takes the expertise of talented engineers and technologists together with the skilful hands of craftsmen and technicians to produce high quality goods and services for both local and export markets. This calls for thorough knowledge of the technical skills the graduates acquire from the institutions offering technical education. Similarly, those tasked with the provision of the technical education to the learners also need to be experts in their respective areas of specialization.

Kerre (2010) notes that national reviews of education and training reveal that almost 90% of vocational teachers and instructors working in the public vocational training system require continuous upgrading of training skills. The Government of Kenya launched Session Paper No.1 of 2005 which outlined a new Policy Framework for Education, Training and Research that addressed key reforms in TVET. It recommended the establishment of a Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) System in the country with the aim to provide and promote life-long education and training for self-reliance.

There is a general feeling among the members of staff of tertiary technical training institutions that a variance exists between the requirements of training institutions and technical teachers trained in the country. The technical teachers appear to lack knowledge and skills to handle their core technical subjects they trained to teach instead of their core technical subjects. It is not clear whether the trend has anything to do with the curricula, training facilities/equipment or training duration offered by the training institutions.

Objective of the Study

i) To investigate the influence of training equipment/machinery on technical teacher competencies
ii) To assess the challenges facing technical education teachers in Kenya

Materials and Methods

The systematic and random sampling techniques were used in the study. The respondents for this study were given researcher designed questionnaires to respond to, and were drawn from four groups namely: lecturers in TVET institutions; students in TVET institutions; supervisors in construction firms and technicians who have undergone TVET training and working within the construction firms. The

statistical tools used for data analysis were chi-square and the analysis of variance (ANOVA) at 0.05 level of significance (α=0.05).

Results and Discussion

The Influence of Training Equipment/Machinery on Knowledge Level Competencies

Table 1 presents the correlation results of teacher perception of exposure to equipment/machinery on knowledge level competencies.

Table 1. Teacher perceptions of exposure to equipment/machinery and knowledge level competencies (statistical significant at 0.05 level)

Independent variable	*Dependent variable*	*Correlation coefficient*	*P-value*
Teacher perception of exposure to equipment/machinery	Knowledge level competencies	0.886	<0.05

Source: Teachers self-assessment questionnaire

The results indicate a highly significant relationship between teacher perception of exposure to equipment/machinery and knowledge level competencies (r=0.886, p<0.05). Thus the results suggest that teachers perceive that a high exposure to equipment/machinery results in high levels of knowledge level competencies and vice versa.

The Influence of Training Equipment/Machinery on Skills Level Competencies

Table below presents the results of the correlation analysis of teacher perception of exposure to equipment/machinery and skills level competencies.

Table 2. Teacher's perceptions of exposure to equipment/machinery and skills level competencies (statistically significant at 0.05 level)

Independent variable	*Dependent variable*	*Correlation coefficient*	*P-value*
Teacher perception of exposure to equipment/machinery	Skills level competencies	0.599	<0.05

As shown from the table, there is a highly significant relationship between teacher perception of exposure to equipment/machinery and skills level competencies (r=0.599, p<0.05). Thus the results suggest that when teachers perceive a high exposure to equipment/machinery, they are likely to have high levels of skills competencies and vice versa.

Challenges Facing Technical Education Teachers

Figure 1 below presents the challenges facing technical education in Kenya.

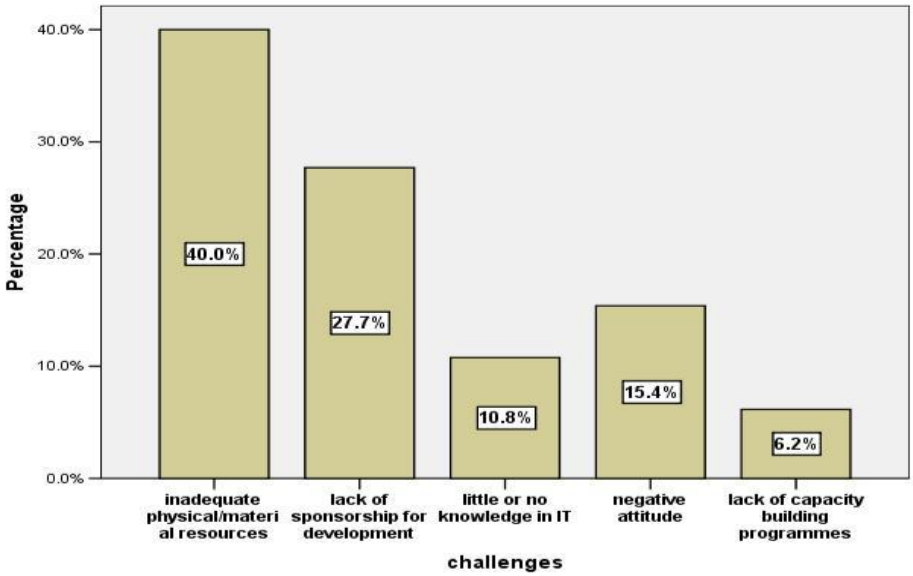

Figure 1. The challenges facing technical education in Kenya

As shown in the figure, 40% of the sampled teachers identified inadequate physical/material resources as the major challenge facing technical education teachers in Kenya. This was followed with lack of sponsorship for self development as reported by 27.7% of the sampled teachers. Other notable challenges were: negative attitude towards technical training (15.4%); little or lack of knowledge in IT (10.8%); and lack of capacity building programmes (6.2%). These results imply that other than the

competency challenges, there exist other infrastructural challenges that technical education teachers encounter in their operations.

The Influence of Training Equipment/Machinery on Technical Teacher Competencies

Regarding the influence of training equipment/machinery on technical teacher competencies, the study established that there was a highly significant positive correlation between teacher perception of exposure to equipment/machinery and knowledge level competencies. The high value of the correlation coefficient indicates that the influence of training equipment/machinery on technical teacher knowledge level competencies is high. The study further established that there was also a highly significant positive correlation between teacher exposure to equipment/machinery and skills level competencies.

Challenges facing Technical Education Teachers

The study established that other than the competency challenges, technical education teachers also face other infrastructural and developmental challenges. These challenges include; inadequate physical/material resources; lack of sponsorship for personal development, negative attitude towards technical education, little or no knowledge in IT and lack of capacity building programmes.

The Influence of Training Equipment/Machinery on Technical Teacher Competencies

The finding that there was a positive correlation between technical education teachers exposure to equipment/machinery and knowledge and skills competencies is consistent with the observations of Cutshell (2003) that in technical institutions, instructional rooms and space design tend to be driven by the highly specialized equipment, furnishings, machinery and tools needed to properly instruct students. TVET facility planning necessitates flexible design with considerations for the future and accompanying changes to pedagogical approaches. The findings further support the findings of Jameson et al (2001) that the physical environment was likely to influence how the teacher constructed activities. Worthington (2007) support this idea by contending that specialized or defined space provides a setting for students to develop a critical thinking and problem solving abilities, practice pertinent skills and gain hands-on experience with industry equipment. Cutshell (2003) adds that Labs and Workshops that stimulate actual work settings can contribute to student achievement, and it is this physical environment that will properly prepare students for employment. Jameson et al (2001) supports this notion by asserting that arranging teacher offices and student learning areas in close proximity promotes collaborations, so that students can easily interact and engage with teachers.

The findings are further supported by IMF (2001), that new technologies are knowledge and skills intensive and there is need to train people to work with those technologies. The exposure to and experience with modern and advanced technologies easily translates into marketable skills when entering the labour force for vocational studies. Besides, the inclusion of learning technologies will supplement the students experience by giving direct access to broad resources, diversity skills and develop one's adaptability and creativity. Temple (2007) adds to the existing literature by observing that trainers and instructors need to remain proficient in the latest trends, methods and equipment for both digital and mechanical technologies. Kerre (2010) supports the views by noting that due to increased technological innovations and the demand for higher education and skills in the modern work place, much more is demanded of a trained technical teacher today than ever before.

Conclusion

In view of the research findings it is concluded that exposure to training equipment/machinery has a direct influence on knowledge and skills level competencies and may lead to observed differences in competencies between the trained technical education teachers. Other than the major challenge of knowledge and skills competencies, technical education teachers constantly encounter challenges of inadequate physical/material resources during their instruction. Lack of sponsorship has meant that these teachers hardly undertake personal development and therefore continue to lag behind in the appropriate classroom practices. The negative attitude directed to vocational training continues to be a challenge to TVET programmes and teachers.

Recommendations

Based on the above findings and conclusions, the researcher recommends the following;

(a) Provision of adequate physical equipment/machinery to the technical training institutions so as to address the challenge of lack of modern training resources.
(b) Enhance sponsored capacity buildings programmes that may equip technical education teachers with latest technological innovations and appropriate classroom practices.
(c) Increase employment opportunities for technical institution trainees so that the positive attitude towards vocational training can improve.

(d) Embrace stakeholders to promote effective use of ICT infrastructure in technical education. Encourage use of computing software such as CAD, CAM etc.

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