

## ***Effects of Industrial Attachment on Competency-Based Training in TVET in Kenya***

*Titus M. Musyimi*

*Rift Valley Technical Training Institute*

### **Abstract**

*Knowledge-based training is an approach which puts emphasis on acquisition of theoretical knowledge without the necessary practical skills. Technical, Vocational Education and Training (TVET) is an extreme opposite and emphasizes use of Science, Technology and Innovation. At the moment training opportunities are being designed around “competencies” which are established for each career field and for each job title. Competency-based performance is a current concept in business and government. Competency is a cluster of related knowledge, skills, and attitudes that affects a major part of one’s job that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development. The general purpose of this study was to establish the significance of industrial attachment on competence-based training. The study focused on 13 Technical Training Institutions (TTIs) in North Rift in Kenya. The research employed a survey research design. Simple random sampling was used to select a representative sample of 100 respondents and questionnaires were used to collect the data. Validity and Reliability of the instruments was established through cronbach reliability test. Descriptive statistics was used to analyze the data and it was done at 95% level of confidence. Findings show that: 86% of the respondents indicated the time allocated for industrial attachment was not adequate; 66% of the respondents said that there was mismatch between relevance of skills acquired and industries made trainees feel incompetent. The study recommends that the industries should constantly be in collaboration with the training institutions. Secondly, the industries should donate some new technology equipment and that these institutions should adapt continuous reinforcement-based industrial attachment to enhance competency based training. In a continuous reinforcement schedule the desired behavior is reinforced each and every time it occurs. This continuous schedule is used during the first stages of learning in order to create a strong association between the behavior and the response.*

**Key words:** *Industrial attachment, TVET, competency based training, effects*

### **Introduction**

Industrial attachment experiences are beneficial to students since they enhance their theoretical training (Hughes & Moore, 1999). The experience increases self-confidence and also provides an opportunity to link with professionals in their respective fields (Van Dorp, 2008). King and McGrath (2004) argued that with TVET being more diverse because of the changes in the labour market, it should be able to integrate the youth into the working world. Given the prevailing economic trend, UNESCO (2004) identified the two major objectives of TVET as the urgent need to train the workforce for self-employment and the necessity to raise the productivity of the informal sector. They point out that lack of resources have led to cuts in

the volume of training provided in public institutions. These cuts are a hindrance to pursuing the critical objectives of providing training and raising production. Considering the expensive nature of TVET as a form of education, it is imperative that an expanded system with necessary and adequate facilities and equipment will lead to the effectiveness of the system.

Related studies carried out by Mia and Islam (2007) in Bangladesh revealed that both formal and non-formal TVET lacked an effective linkage between training and the world of work. It further noted that because of its lack of coherent mode, practical skills training do not produce the requisite skills for the job market. Additionally, the trainees also lacked training experience, initiative and motivation to discharge their duties effectively.

Practice clarifies theory and any learning activity, especially technical oriented must be backed by both theory and practice. It is therefore important for students in various technical disciplines undergo industrial attachment for a better understanding of the tasks and practices performed by industry professionals, improve self-confidence and have the opportunity to apply classroom theories to practical issues in the actual business setting. However, the provision of experiential learning activity such as industrial attachment does provide a meaningful learning experience (Zopiatis, 2007a).

In Kenya, the National Industrial Training Authority (NITA) formerly Directorate of Industrial Training (DIT) in the ministry of labour deals with industrial attachments. DIT was instituted in 1979 under the Industrial Training Act. The DIT was in 2011 successfully transformed into The National Industrial Training Authority (NITA) under Industrial Training Act (GoK, 2012). The major role of NITA in the industrial attachment for students' scheme is to streamline and oversee industrial attachment following concerns from the industry that students are "damped" at the industry and are seldom informed of what to do with the students. The students also complain of being "exploited" by the industry who views them as "cheap labor"(GoK, 2012). Other issues of concern are the nature of work given to the students, their supervision during the attachment, and length of the attachment period as well as its timing.

Studies done in Cyprus and Ireland have shown that the provision of experiential learning activities such as hospitality industrial attachment do not necessarily provide a meaningful learning experience due to various challenges that significantly affect the overall quality of the internship programmes. Coupled by the fact that no known study has been done in this country on industrial attachment, and how it affects competency based training it was important to undertake it in order to investigate these challenges within the distinct environment of the TTIs.

#### ***Statement of the Problem***

The overall goal of TVET is to produce a critical mass of well-trained human resources to implement programmes and projects in Kenya's Vision 2030. The time available to do this is simply too short, now less than 15years. There is therefore need not only to train new persons

but also re-train the available trained personnel. It is envisaged that TVET will require a major transformation and for this to happen it will have to entrench competency- based education and training; the challenge has been on how to re-align TVET programmes with market and industrial needs. In order to achieve this objective, there must be continuous consultations and visits to industries so that every concept learned at TTIs is reinforced with relevant competencies. It is against this challenge that the researcher sought to find out whether the contact time with the industries was adequate to help the trainee to get the competencies.

### *Specific Objectives*

To establish whether every trainee gets a place for industrial training, to determine the relevance of skills gained at technical training institute in relation to industrial needs, to establish the learning in the industries in relation to the time allocated for attachment, to determine the best approach that should be used to cultivate the competencies required by engineering trainees in TTI's

The objective of Kenya's Vision 2030 is to make Kenya a newly industrializing, middle-income country, providing high quality life for all its citizens, by the year 2030 (GoK, 2007.). The Sessional Paper No. 1 of 2005 provides for the education and training of technical personnel and their progression from levels of skills and technical knowledge to the next (GoK, 2005). From the Sessional Paper No. 1 and the TVET policy framework, technicians will mainly be produced from the technical training colleges. The duration of school-based technical and vocational education is between one and three years. This is a relatively huge number of young people to be left without any training. There is no doubt that this constitutes a huge loss to the national economy.

### **Theoretical Framework**

Reinforcement theory of learning is the theory that underpins this research.

#### *Continuous Reinforcement*

In a continuous reinforcement schedule the desired behavior is reinforced each and every time it occurs. This continuous schedule is used during the first stages of learning in order to create a strong association between the behavior and the response. Over time, if the association is strong, the reinforcement schedule is switched to a partial reinforcement schedule.

### **Methodology**

The researcher used a descriptive research design in this study. The target population of the study was composed of TVET students From 12 TTI's, in Kenya North Rift Region and simple random and purposive sampling was used to select 87 students who had completed at least one industrial attachment. Questionnaires, both structured and open ended were used to collect data from the students Findings

The findings revealed that majority of the respondents, 86.2%, were male. The Gender Policy in Education (GoK, 2007) revealed that enrolment in public TVET institutions increased from 40,622 in 1999 to over 66,500 in 2004, with females constituting 49.1 per cent of the total enrolment which is almost 50% of the total enrolment. This agrees with the African Union (2007) report that indicated that some vocational training programmes like dressmaking, hairdressing, and cookery are associated with girls, very often girls who are less gifted academically. This indicates that there is gender stereotyping even in the TTIs which might limit the enrolment of females in TTIs in engineering sectors.

### *Access to Industrial Training*

#### *Does Every Trainee get a Place for Industrial Training?*

The findings in showed that 76% of the students got a place for industrial training; of concern were the 24% of the students who were not able to get a place for industrial training. Van Dorp (2008) posited that the collaboration with the industries and the education institutions was the major rising concern in many developing countries. He also pointed out that industrial attachment was the most pronounced linkage where he mentioned in particular that the lack of initiative by TVET institutions and poor response from the industries were among the major challenges facing the collaboration of TVET and industry. The low levels of collaborations were also indicated in the findings in figure 1 that showed that majority of the students, 79% got placement for industrial training through their own self initiative, 14% got industrial attachment places through their parents' initiative while 7% were connected through friends; none of them mentioned being linked via the TVET institutions' initiative indicating lack of collaboration between the TVET institutions and the industries. Based on this, there would be challenges in some students accessing industrial attachment and without industrial training, the reputation of TVET institutions that dependent on their ability to produce qualified young people who will be immediately operational in the work place will not be realized.

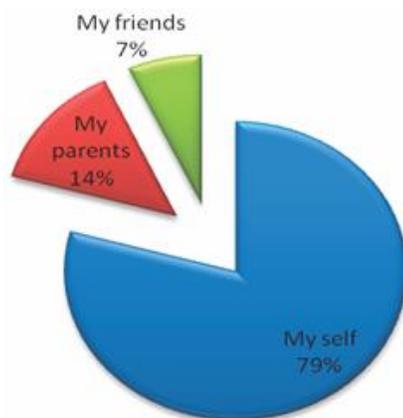


Fig. 1: Linkage to Industrial Attachment

### *Skills Gained in Relation to Industrial Needs*

#### *Relevance of Skills gained in TTIs in to Relation to Industrial Needs*

The study also sought to establish whether the skills they had gained at the technical training institute were relevant to the needs of the industry. As shown in figure 2 below, majority of the students, 41.4% agreed that the level of skills offered by TTIs were sufficient while 31% strongly agreed with this notion. However, approximately 27% of the students were of the contrary opinion with 6.9% of this group not so sure. Although these findings indicate an encouraging scenario of a match between skills and demand, over 20% of the cases indicate a mismatch. Past research in TVET and what they offer in relation to the needs of the industry have pointed out that there was widespread gross mismatches between supply and demand for appropriate skilled labour ( Nyerere, 2009), leading to underemployment in the informal sector and low productivity. This indicates that TVET institutions should therefore be demand driven and also be able to promote enterprise culture so as to offer a wide range of employment opportunities to the youth and others. Nyerere (2009) also suggested that the need to have a national skills inventory, backed by an efficient labour market information system to ensure that training is based on the correct demands in the wage employment sector and promotion of self-employment in collaboration with the industry.

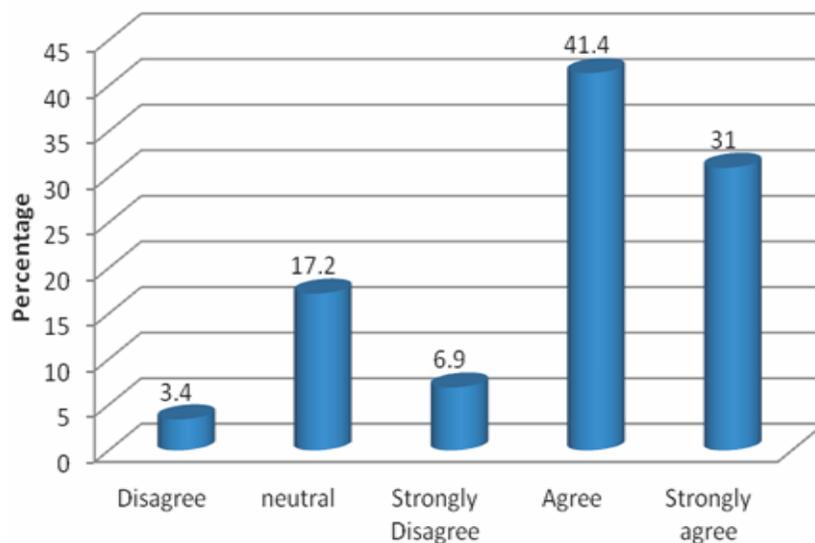


Fig. 2: Relevance of Skills gained at TTIs

#### *Challenges Experienced in the Mismatch of the Technology Taught at TTIs*

The findings revealed showed that, 48.3% of the students thought that TTIs lack modern equipment/machines for training. Nyerere (2009) noted that the quality of TVET graduates had declined in recent years due to poor instructional methods, outmoded/inadequate training equipment and lack of meaningful work experience and supervision during attachment. This gives a clear indication of lack of enough attention from both the TVET institutions as well as the industries and the government in terms of support for TVET and thus, Nyerere remarks, the graduates of TVET have experienced technology shock when they finally enter the job market. In addition to this, there were also challenges related to language barrier, time limitation and use old

machines to train which is different from the new and modern ones in the industries.

**Table 1: Mismatch between the Technology/Methods in TTIs and in the Industry**

	FREQUENCY	PERCENT
TTIs lack new/modern machines for practical training	14	48.3
Matches/the same/Fine	3	10.3
Language barrier	2	6.9
More time is spent on theory than practicals during training	3	10.3
Time factor	3	10.3

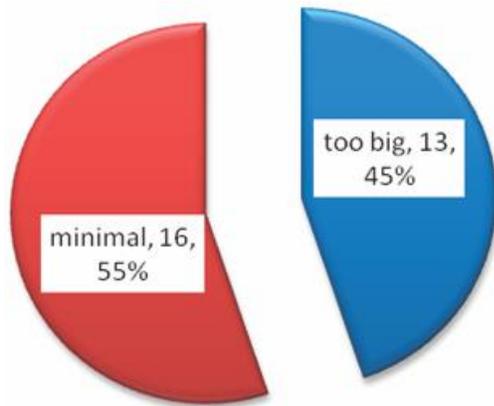


Figure 3: Rate of the Difference in Technology

**Time for Industrial Attachment**

The study also sought to establish the views of the students on the time that they spend in industrial attachment. The findings in figure 6 revealed that majority of the students, 31% strongly disagreed that the time spent on industrial attachment was enough. The African Union (2007) report pointed out that a limited amount of in-company or enterprise-based training also takes place in some countries. This would definitely have negative effects in terms of exposure time to the gaining of competency skills by the students because they are not given enough time for their industrial attachment and majority of the students, 276%, were of the opinion that the time they spend on industrial attachment should be increased to at least six months or more to enhance Competence Based Training (CBT) as shown in figure 8. Based on this, it is worth pointing out that Kenya’s education system has put emphasis on the formal academic education which has been the main setback for TVET sector which has mainly resulted in a lot of attention being spared for class-work and less time is spared to the gaining of practical skills and this compounds the setbacks that emanate from lack of a modern technology savvy institution, support from the government and industry as well as the inadequacies of the curriculum

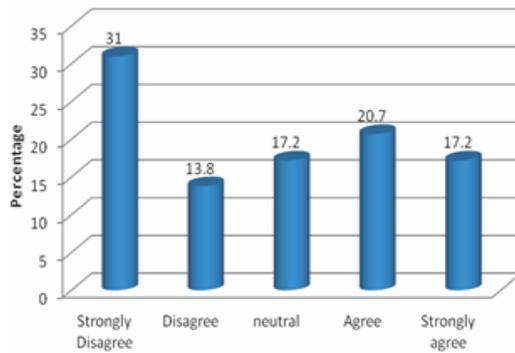


Fig. 4: Time Spend in Attachment

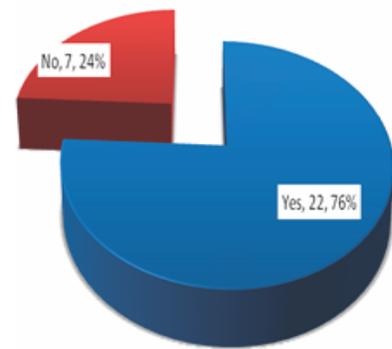


Fig. 5: Attachment Time should be Increased

**Strategies to be Adopted to Enhance CBT**

The study also sought suggestions from the students on what strategies can be adopted to enhance CBT. From the findings, 86% of the students proposed that the industrial attachment should be done continuously as new skills are introduced to enhance CBT. The students also gave suggestions on other modes of industrial attachment which can be done in order to enhance CBT and majority of the students, 31% suggested that there should be more practical hours in TTI's, 24.1% suggested on having half/yearly attachments while

10.3% suggested engaging trainees practically in applications and in having educational trips respectively as presented in table 4. Three of the initiatives that the Ministry of Higher Education Science and Technology (MoHEST, 2012) proposals to be undertaken to reform the initiatives on the TVET system touched on reviewing and analyzing sub-sector performance through the rapid appraisal of the TVET system, undertaking a situation audit of infrastructure, equipment and staffing for TTIs and Institutes of Technology ITs and the undertaking a study on the skills needs for the TVET sub-sector in relation to industry with the aim of developing a national skills inventory plus curriculum framework for dynamic skills provision. This means that the ministry recognized the need for continuous appraisal of both the curriculum and infrastructure through audits and appraisals to make sure that TVETs keep up with the demands from the industry in line with the ever changing technology (Nyerere, 2009).

**Strategies can be Adopted to Enhance CBT**

Table 2: Other Modes of Enhancing Competency Based Training

	FREQUENCY	PERCENT
Engaging trainees practically in applications for attachment placement	9	10.3
Having half/yearly attachments	21	24.1
Having educational trips	9	10.3
More practical hours in TTI's	48	55.2

**Attachment Assessment**

The study finally sought suggestions from the students on how the attachment assessment should be done. The findings were summarized and presented in table 3. Majority of the students, 24.1%, suggested that the assessment should be monthly and in the place where they are attached, they should be involved practically and strictly using logbook. The respondents also suggested that teaching with modern equipment should be encouraged (20.7%). The African Union (2007) report pointed out that TVET system managers, professionals and policy makers have to be trained and their skills upgraded, for instance on assessment guidelines.

*Table 3: Suggestions on how Attachment Assessment should be done*

	FREQUENCY	PERCENT
Monthly assessment in the place of attachment	21	24.1
Involving the student practically using of logbook	21	24.1
Twice in the attachment period	9	10.3
Teaching students with modern equipment	18	20.7

## Conclusion

The study revealed that very few TTIs are actively involved in the attachment placement of the students since majority of these students obtained placements by themselves and there is the risk of them not getting placed in industries that are in line with what they are studying. Some students would have difficulties in accessing placement making them miss out on crucial skills that can be gained from the industrial attachment. From the study findings, students suggested that more time should be assigned to industrial attachment and thus suggested that it should be increased to at least six months or more to enhance Competence Based Training (CBT). Other suggestions revealed that the industrial attachment should be done continuously as new skills are introduced to enhance CBT and practical training hours should be increased in TTIs. The students also gave suggestions on how assessments should be done and they suggested that the assessment should be done on monthly basis and in the place where they are attached, the student should be involved practically using of questionnaire/ logbook, implementing the curriculum with modern equipment, the attachment to last for at least 6 months and that the attachment period should be doubled.

## Recommendations

The study thus recommends: Strengthening the partnerships between the TTIs and the industry and the government; establishing model TVET institutions in each county (particularly in marginalized areas) so that other institutions can mold after them; revision of TVET Curriculum periodically so that it reflects the needs of industry and the labor market; integrating TVET students into the work force and exposing them to a range of technical skills and experiences

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