

Industry-TVET Collaboration on Students' Skill Acquisition: The Case of TVET Institutions in North Rift Region, Kenya

*Mulati T. W., Kyalo N. M., & Dimo, H.
University of Eldoret, Eldoret, Kenya*

Abstract

Technical and vocational education and training (TVET) applies to all forms and aspects of education that are technical and vocational in nature, provided either in educational institutions or under their authority, by public authorities, the private sector or through other forms of organized education, formal or non-formal, aiming to ensure that all members of the community have access to the pathways of lifelong learning. Recently, TVET has become a subject for discussion at summits, academic conferences and at policy circles in most developing countries including Kenya. TVET institutions facilitate the acquisition of the practical and applied skills as well as basic scientific knowledge. However, many research findings have revealed that TVET has been limited on skill acquisition in most countries. On the other hand, the synergy between TVET institutions and industry would greatly encourage and augment a partnership that would result in graduate employability and general skill acquisition. Therefore, this study sought to establish the effect of industry-TVET institutions collaboration on skill acquisition. A case study design was adopted in the present study where research questionnaires were randomly distributed to a sample of 712, 104 and 32 students, lecturers and industry supervisors respectively. Findings from the study revealed that practical skill was the main type of skill acquired through the collaboration. Results further showed that majority of the students (over 70%) reported that the collaboration played a role in relevant skill acquisition. Similarly, majority of the lectures and supervisors agreed that the collaboration is of significance in students' skill acquisition. Therefore, the collaboration should be strengthened.

Key words: *Skill acquisition, industry, TVET institutions, collaboration*

Introduction

According Mohd (2008), Technical and vocational education and training (TVET) is a branch of education that has been presented into the mainstream education system and converted recently as part of initiatives of developing countries to promote access, equity and quality of education. This is ultimately aimed at providing the necessary local workforce who possess the necessary skills and competencies for achieving the high income nation status by 2030. Furthermore, Boateng & Ofori-Sarpong (2002) elaborated that technical colleges are the

principal technical institutions established towards producing craftsmen in several occupations. The researcher further noted that it is a paradox that a large number of technical college graduates go jobless for years, while service and construction industry complain of lack of skilled workers. Therefore, the experience requirements are now stated in terms of competencies and skills rather than years.

Skill is generally defined as the ability possessed to carryout activities with ease and accuracy. Osuala (2004) clearly defined skill as the ability to perform expertly, facility in performance, dexterity and tact. Therefore, skill is the outcome of the training given to a student or an employee to make him/her perform more expertly and easily on his job by using his knowledge effectively and readily in the execution of his performance.

Studies have clearly shown that TVET institutions facilitate the acquisition of the practical and applied skills as well as basic scientific knowledge (Okoye & Okwele, 2013). It is therefore a planned program of courses and learning experiences that begin with exploration of career options, basic academic and life skills, and enables achievement of high academic standards, leadership, preparation for industry-defined work, and advanced and continuing education (Okafor, 2011). New skills are needed and educational institutions are required to meet the need by providing not only the minimum of schooling or vocational training, but also training for scientists, innovators and high level specialists (UNESCO, 1991).

In Kenya, there is a significant expansion of vocational and technical training institutions. However, the system has some marked shortcomings. For example, there is no feedback from the employers to training institutions leading to a supply driven training skewed in favour of technologists. Therefore, technical graduates lack hands-on experience and have poor work attitudes and are inflexible to change (Republic of Kenya, 2002).

According to African Union (2007), the main significant hallmark of TVET is its alignment towards the world of work and the emphasis of the curriculum on skills acquisition. Therefore, TVET programs are well placed to train the skilled and entrepreneurial workforce for the economy. Recently, TVET has become a subject for discussion at summits, academic conferences and at policy circles in other developing countries including Kenya. Unfortunately, many research findings have revealed that TVET has been limited on employability and national development in in most countries (Amadi, 2013). On the other hand, the synergy between TVET institutions and industry would greatly stimulate and enhance a partnership that will result to graduate employability and general skill acquisition. Therefore, this study sought to establish the effect of industry-TVET institutions collaboration on skill acquisition.

Research Methodology

The study focused on selected TVET institutions in the North Rift Region. These included; The Eldoret National Polytechnic (National Polytechnic), Kaiboi Technical Training Institute (rural technical training institute), Rift Valley Technical Training Institute (urban technical training institute), Alphax College (Private) and Kenya Institute of Applied Sciences (Private).

Students (6104), Lecturers in TVET institutions (434) and Supervisors in industries (87) that collaborate with the TVET institutions formed the target study in the present study. A sample size of at least 10% was adopted noting the sample sizes were below 10,000.

The researcher used stratified proportionate random sampling to get students and lecturers from Science Engineering and Technology (SET) Departments in the institutions. This is because of the relative enrolment in different departments. Systematic sampling was used to identify firms/industries that attached students. Purposive random sampling was used to select private institutions required in the study so as to select institutions which offered courses that require hands on industry exposure

The researcher employed questionnaires and an interview schedule to collected data. Three sets of both open and close ended questionnaires were distributed to students, lectures and workplace supervisors.

Validity & Reliability

The validity of the research instrument was achieved through the expert judgment of the research supervisor who critically went through it to ensure that the questions contained were clear and precise and present the phenomena under study. On the other hand, Orodho (2003) defines Reliability as the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. Pilot test was carried out by randomly distributing about 20 questionnaires to target respondents within the different target groups in the study. This was done to determine whether data gathered from each variable had a significant effect on career development. Cronbach's Alpha was then used for testing the reliability of the questionnaire responses, using SPSS software. The values were within the acceptable limit concluding that the instrument was reliable and worth of use for the study.

Interview Schedule

Structured interview schedule was used to interview the industrial attachment coordinators and selected students. Structured interviews were selected because they are easier to analyze, economical and provide a basis for generalization.

Data Analysis

Descriptive statistics, which includes percentages, frequency distribution, graphs, and pie charts, was used in order to summarize data.

Findings

Demographic Information

Students' year of study and trainers' level of education formed the main demographic information of the respondents. Over half (54.8%) of the students who participated in the study were in their 2nd year of study, as another 42.1% were in their 3rd year of the study. Only 3.1% were in 1st year of study as shown in Figure 1.

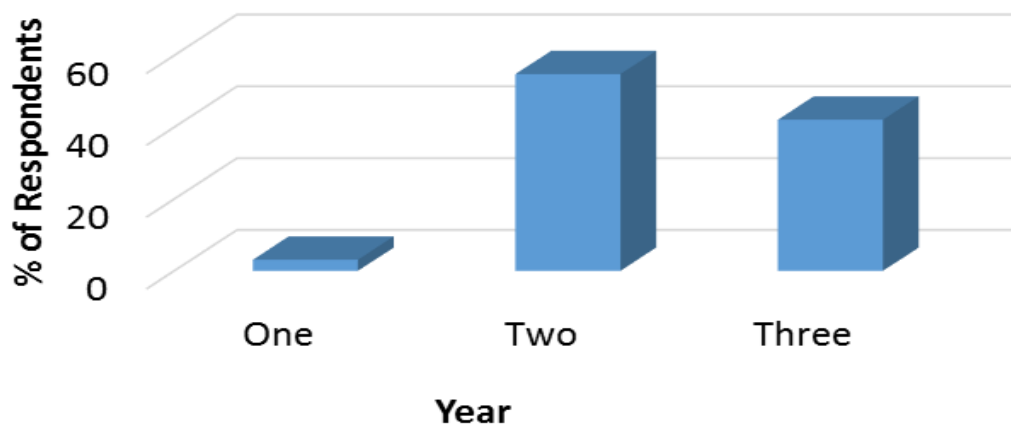


Figure 1: Respondents' Study Year

As shown in Table 1 below, majority of the lecturers at 69.2% were diploma holders while 19.2% (20) were degree holders. Another 7.7% (8) and 3.9% (4) were higher national diploma and masters degree holders respectively.

Table 1 Academic Qualification of Trainers

| Academic qualifications | f | % |
|-------------------------|----|------|
| Certificate | 0 | 0.0 |
| Diploma | 72 | 69.2 |
| Higher Diploma | 8 | 7.7 |
| Degree | 20 | 19.2 |
| Masters | 4 | 3.9 |
| Doctorate | 0 | 0.0 |

Types of Skill Acquired by Students

Majority of the lecturer respondents at 94.2% stated that industry-TVET institutions collaboration endeavours to supplement practical content, as another 90.4% stated that it provides an opportunity for one to be exposed to new technologies. There were 89.4% who stated that industry-TVET institutions collaboration endeavored to expose learners to real work set up, and 80.8% said that it was set to enable one get exposure to modern machines and equipment.

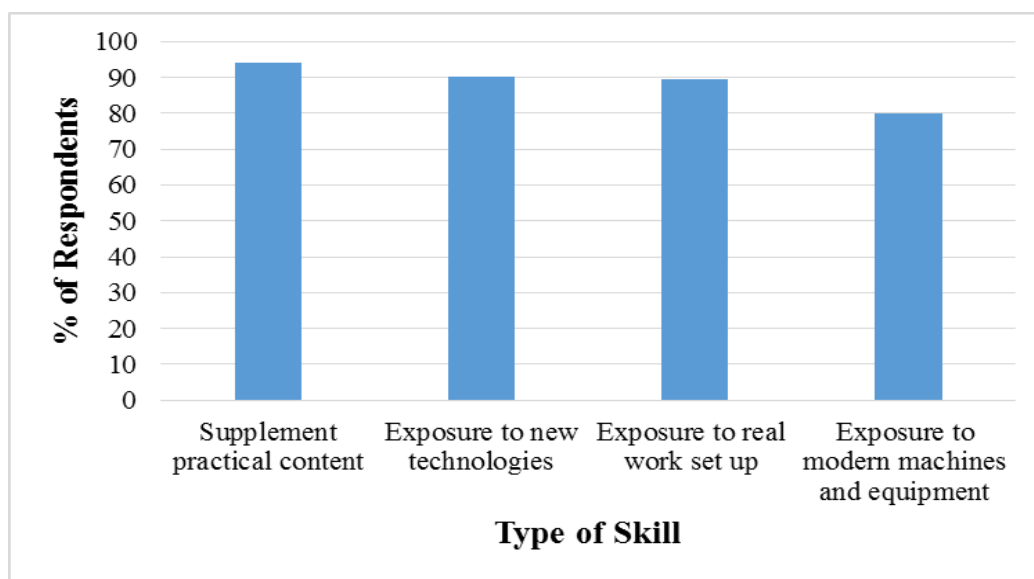


Figure 2: Types of Skill Acquired by Students

Students’ Assessment on Adequacy of Skills

The respondents were asked to state the significance of industry-TVET institution collaboration on skill acquisition. Their responses are presented below.

Approximately 82.7% (589) of the respondents stated that to a great extent, they learnt about the latest development in their course through industry-TVET institutions collaboration. Another 83.7% (596) asserted that industry-TVET institutions collaboration added a good deal to their scientific knowledge. Approximately 70.1% (499) of the respondents stated that to a great extent they were able to operate machines and equipment heard and read about in text books whereas 21.3% (152) said to some extent. Majority (83.3%) of the respondents stated that to some extent, they acquired new skills relating to their area of study, whereas only 15.4% (110) stated that they acquired new skills relating to their area of study to a little extent.

Findings further reveals that 82.65 (588) of the respondents stated that to a great extent, they were able to sharpen their old skills already acquired in area of study. However, there was 0.3% (2) of the respondents who asserted that there was actually nothing acquired in the area of study. It is worth to note that majority (98.7%) of the respondents stated that they were not able to accomplish practical assignments given by their work place supervisors. Another 91.8% (654) stated that to a great extent, the time they spent in industry could have been more useful spent doing academic work.

Table 2 Students' Assessment on Adequacy of Skills

| Objectives | GE | | SE | | L | | VN | | f |
|---|-----|------|-----|------|-----|------|----|------|-----|
| | f | % | F | % | F | % | F | % | |
| I learnt about the latest developments in my course through industry-TVET institutions collaborations | 589 | 82.7 | 82 | 11.5 | 38 | 5.3 | 3 | 0.42 | 712 |
| Industry-TVET institutions collaboration added a good deal to my scientific knowledge | 596 | 83.7 | 106 | 14.7 | 10 | 1.4 | - | - | 712 |
| I was able to operate machines and equipment heard and read about in textbooks | 499 | 70.1 | 152 | 21.3 | 61 | 10.0 | - | - | 712 |
| I acquired new skill relating to my area of study | - | - | 593 | 83.3 | 110 | 15.4 | 9 | 1.3 | 712 |

| | | | | | | | | | |
|--|-----|------|----|------|----|-----|-----|------|-----|
| I was able to sharpen my old skill already acquired in area of study | 588 | 82.6 | 93 | 13.1 | 29 | 4.1 | 2 | 0.3 | 712 |
| I correctly accomplished practical assignments given by my workplace supervisors | - | - | - | - | 9 | 1.3 | 703 | 98.7 | 712 |
| The time I spent in industry could have been more useful spent doing academic work | 654 | 91.8 | 55 | 7.7 | 3 | 0.4 | - | - | 712 |
| I'm acquainted with new technologies, machines and equipment in my area of study of function | 654 | 91.8 | 55 | 7.7 | 3 | 0.4 | - | - | 712 |
| The collaboration gives an opportunity of relating my theoretical knowledge to practice. | 648 | 91.0 | 66 | 9.3 | 2 | 0.3 | - | - | 712 |
| Students receive valuable idea about industry | 648 | 91.0 | 66 | 9.3 | 2 | 0.3 | - | - | 712 |

Similarly, an equal proportion (91.8%) of the respondents stated that they were acquainted with new technologies, machines and equipment in their areas of study function.

Results further indicate that 91.0% (648) of the respondents stated that to a great extent, industry-TVET institutions collaboration gives good opportunity of relating their theoretical knowledge to practice. Majority of the respondents also stated that through industry-TVET institutions collaboration, students receive valuable ideas about industry

The lecturers were also asked to state whether the skills were relevant and adequate. The findings are shown in Table 3 below. Majority (65.4%) of the respondents stated that to some extent, students learnt about the latest developments in their course through industry-TVET institutions collaboration whereas 26.0% (27) stated that this was the case to a great extent.

Lecturers' Assessment of Adequacy of Skills

Another 87.5% (91) stated that to a great extent, industry-TVET institutions collaboration added a good deal students' scientific were able to operate machines and equipment and read about in textbooks. The study also reveals that 40.4% (42) stated that to a great extent students acquired new skill relating to area of study whereas 36.5% (38) stated that this was the case to some extent, students were able to sharpen skills already acquired in area of study. Another 68.3% (71) stated that to some extent, students correctly accomplished practical assignments given by workplace supervisors.

Less than half (41.3%) of the lecturers stated that to a great extent, students were acquainted with how new technologies machines and equipment in their area of study function as 37.5% (39) considered this to some extent. There were 46.2% (48) of the respondents who stated that to a great extent, students receive valuable idea about industry whereas 36.5% (38) stated that this was the case to some extent. Industry supervisors were also asked to state whether the collaboration was significant in skill acquisition and their responses are recorded in Table 4 below. It stands 25% of respondents agreed to a great extent and 59.4% (19) of the respondents stated that to some extent, students learnt about the latest developments in their course through industry-TVET institutions. Another 15.6% stated that to a great extent, industry-TVET institutions collaboration added a good deal students' scientific were able to operate machines and equipment read about in textbooks.

Table 3 Lecturers' Assessment of Adequacy of Skills

| Adequacy Skills | GE | | SE | | L | | VN | | Total | |
|---|----|------|----|------|---|-----|----|-----|-------|-----|
| | f | % | f | % | f | % | f | % | F | % |
| Students learnt about the latest developments in my course through industry-TVET institutions collaboration | 27 | 26.0 | 68 | 65.4 | 9 | 8.6 | 0 | 0.0 | 104 | 100 |
| Industry-TVET institutions collaboration added a good deal students scientific knowledge | 91 | 87.5 | 13 | 12.5 | 0 | 0.0 | 0 | 0.0 | 104 | 100 |

| | | | | | | | | | | |
|---|----|------|----|------|----|------|---|-----|-----|-----|
| Students were able to operate machines and equipment heard and read about in textbooks | 88 | 84.6 | 16 | 15.4 | 0 | 0.0 | 0 | 0.0 | 104 | 100 |
| Students acquired new skills relating to area of study | 42 | 40.4 | 38 | 36.5 | 20 | 19.2 | 4 | 3.8 | 104 | 100 |
| students correctly accomplished practical assignments given by my workplace supervisors | 20 | 19.2 | 71 | 68.3 | 10 | 9.6 | 3 | 2.9 | 104 | 100 |
| Students were acquainted with knowhow of new technologies, machines and equipment in my area of study of function | 43 | 41.3 | 39 | 37.5 | 22 | 21.2 | 0 | 0.0 | 104 | 100 |
| Industry-TVET institutions collaboration gives a good opportunity of relating my theoretical knowledge to practice. | 48 | 46.2 | 36 | 34.6 | 20 | 19.2 | 0 | 0.0 | 104 | 100 |
| Students receive valuable idea about industry | 59 | 56.7 | 38 | 36.5 | 7 | 6.7 | 0 | 0.0 | 104 | 100 |

Table 4 Supervisors' Response on Skill Acquisition through TVET-Industry Collaboration

| Adequacy skills | GE | | SE | | L | | VN | | TOTAL | |
|--|----|------|----|------|---|------|----|-----|-------|-----|
| | f | % | f | % | f | % | f | % | F | % |
| Students learnt about the latest developments in my course | 8 | 25 | 19 | 59.4 | 5 | 15.6 | 0 | 0.0 | 32 | 100 |
| Students added a good deal to my scientific knowledge | 5 | 15.6 | 27 | 84.4 | 0 | 0.0 | 0 | 0.0 | 32 | 100 |
| Able to operate machines and equipment heard and read about in textbooks | 8 | 25 | 22 | 68.8 | 0 | 0.0 | 0 | 0.0 | 32 | 100 |

| | | | | | | | | | | |
|---|----|------|----|------|----|------|---|-----|-----|-----|
| Students acquired new skill relating to my area of study | 19 | 59.4 | 8 | 25 | 5 | 15.6 | 0 | 0.0 | 32 | 100 |
| Students sharpened my old skill already acquired | 3 | 9.4 | 22 | 68.8 | 7 | 21.8 | 0 | 0.0 | 32 | 100 |
| Students correctly accomplished practical assignments given by my workplace supervisors | 5 | 15.6 | 18 | 56.3 | 9 | 28.1 | 0 | 0.0 | 32 | 100 |
| The time Students spent in industry could have been more useful spent doing academic work | 0 | 0.0 | 0 | 0.0 | 30 | 93.8 | 2 | 6.2 | 104 | 100 |
| Students acquainted with how new technologies, machines and equipment function | 5 | 15.6 | 18 | 56.3 | 9 | 28.1 | 0 | 0.0 | 32 | 100 |
| Good for relating theoretical knowledge to practice. | 3 | 9.4 | 22 | 68.8 | 7 | 21.8 | 0 | 0.0 | 32 | 100 |
| Students receive valuable idea about industry | 7 | 21.9 | 22 | 68.8 | 3 | 9.3 | 0 | 0.0 | 32 | 100 |

The study also reveals that 84.4% (27) stated that to a great extent students acquired new skill relating to area of study. Another 15.6% (5) stated that to great extent, students correctly accomplished practical assignments given by workplace supervisors. It should however be noted that majority (93.8%) of the industry supervisors who participated in this study did not agree to the statement that 'the time I spent doing academic work.' This implies that they are of the agreement that the time spent in industry is meaningful to the student.

From the above results, it is evident that the industry-TVET institutions collaboration on training is relevant on skill acquisition. It points to the immense need for the exposure and also it affords a learning methodology that is effective in transfer of knowledge and skills. This method of learning is favored by students as it is capable of holding the concentration of learners' interest. These findings are in agreement with those reported by Hasan, Clement, and Alamgir (2014). In their study, the researchers reported a significant association between industry-TVET institutions collaboration and occupational skills in Bangladesh. The results are also in harmony with those of Rashidi (2013). In this study, a significant collaboration between public training institutions and private industries in Malaysia was recorded. The collaboration was also found to be of importance in improving the quality of training delivery in TVET institutions in Malaysia. Earlier, a study by Choi, Misko, Phan and Kang (2001) in Korea showed that linkages between schools, vocational colleges, junior colleges and industry played a role in provision of workplace training for students. Furthermore, Perkinson (2006) in his research carried out in China clearly indicated that collaboration between TVET and industry provided a stronger connection between providers and industry.

Conclusion and Recommendation

Industry-TVET institutions collaboration plays a role in students' skill acquisition. However, industry is not impressed by the entry behaviour owing to skills mismatch. The industry expects a human resource that quickly fits into the production line with little induction and supervision. Therefore, the collaboration should be strengthened further

References

- African Union. (2007, May). Strategy to revitalize technical and vocational education and training (TVET) in Africa. In *Meeting of the Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II+)* 29-31.
- Amadi, U. P. (2013). Appraising work-based learning experiences of technical and vocational (teacher) education and training (TVTET) programmes in Nigeria. *Mediterranean Journal of Social Sciences*, 4(5), 137.
- Boateng, K., & E. Ofori-Sarpong (2002). Analytical study of the labor market for tertiary graduates in Ghana. *A World Bank/National Council for Tertiary Education and National Accreditation Board project*.
- Choi, J., Misko, J., Phan, O., & Kang, K. J. (2001). *Linkages between vocational education and training providers and industry*. National Centre for Vocational Education Research.

- Hasan, M., Clement, C. K., & Alamgir, S. M. (2014). Relationship between occupational skills provided to polytechnic diploma engineers by BTEB and requirement of industry in Bangladesh. *International Journal of Vocational and Technical Education*, 6(4), 43-50.
- Mohd, Z. (2008). *TVET in Malaysia*. Retrieved from <http://dspace.unimap.edu.my/dspace/bitstream/123456789/7186/1/TVET%20in%20Malaysia.pdf>
- Okafor, E. C. (2011). The role of vocational and technical education in manpower development and job creation in Nigeria. *Journal of Research and Development*, 2(1), 152-159.
- Okoye, K. R. E., & Okwelle, P. C. (2013). Technical and vocational education and training (TVET) in Nigeria and energy development, marketing and national transformation. *Journal of education and practice*, 4(14), 134-138.
- Orodho, A. J. (2003). *Essentials of educational and social sciences research methods*. Nairobi: Masola Publishers.
- Osula, E. C. (2004). *Foundations of vocational education*. Enugu. Nigeria Cheston Agency Limited.
- Perkinson, R. (2006). The continuum towards a modern TVET system. In *TVET conference, Beijing, China*.
- Rashidi, R. (2013). Evaluation of collaboration between public training institutions and private industries and its importance in improving the quality of training delivery in TVET in Malaysia. *TVET@ Asia*, (1), 1-17.
- Republic of Kenya. (2002). *National development plan 2002-2008: Effective management for sustainable economic growth and poverty reduction*. Nairobi: Government printer.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (1991). *World education report 1991*