

PARTNERSHIP BETWEEN TECHNICAL INSTITUTIONS AND THE ENGINEERING INDUSTRY IN ADDRESSING MANPOWER NEEDS OF THE LABOUR MARKET IN TANZANIA

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ABSTRACT: *The issue of mismatch between technical education graduates' skills and labour market demands has been an important discourse in Tanzania as in other developing countries, with employers expressing their concern about poor quality of graduates. Strong partnership between training institutions and employers is considered a vital factor to make training respond to the labour market demands. The study has revealed existence of weak partnership working between technical institutions offering engineering programmes and employers of engineering graduates in terms of collaboration in determining training needs, curriculum development, students' and teachers' internships and resource collaboration (finance, human resource, learning facilities). It is therefore recommended to establish strong partnership working to enable technical institutions produce qualified graduates for the labour market.*

KEYWORD: partnership, technical institutions, engineering industry, Tanzania

INTRODUCTION

Tanzania's technical education policy of 1990s had a specific objective of training sufficient numbers of skilled, competent and reliable personnel to meet needs of the formal and informal sector (URT, 1996). In addition, the Development Vision 2025 also envisages Tanzania to have a well-educated society by producing the quantity and quality of educated people sufficiently equipped with the requisite knowledge and skills to solve society's problems and overcome the challenges of development (Kaaya, 2012). Furthermore, in order to produce qualified graduates to meet labour market demands, Tanzania embarked on competence-based reforms in technical education from early 2000s (Rutayuga, 2014).

Despite these policies recognizing the need for sufficient numbers of skilled, competent and reliable personnel to meet needs of the formal and informal sector, technical skills gap between graduates and the labour market demands continues to be a major problem in Tanzania. Employers have continued to express their concern and worry over the quality of graduates of technical and vocational education programmes (Nkondola & Deuren, 2017). This situation has contributed to foreign investors and international organizations looking for experienced employees or experts from abroad (Mbonde & Minga, 2013; URT, 2012). The study conducted by Technical and Vocational Education and Training Development Programme (TVETDP), a project under the Ministry of Education and Vocation training in Tanzania measured TVET performance in terms of satisfaction of employers with the quality of TVET graduates. The report indicates that 7% of employers perceived that it takes less than 3 months for vocational education (VET) graduates to be able to competently carry out their responsibilities after employment, 46% perceived that it takes between 3 to 6 months, 33% indicated that it takes between 6 to 12 months and 14% indicated that it takes above 1 year for VET graduates to master their responsibility employment. A relatively gloomy

situation is observed with the technical education and training (TET) graduates where 49% of employers perceived that it takes between 1 to 2 years for TET graduates to master their jobs after employment, 6% indicated a shorter duration of less than 3 months, 12% indicated a duration of less than 1 year and 33% indicated a longer duration of more than 2 years (URT, 2012). Therefore the study found that graduates from TVET institutions were not competent enough upon completion of their studies.

The report further identified missing skills from TVET graduates that affect their performance when they join the labour market. Four major areas of skills considered missing include understand the organization, ability to use modern equipment, work attitude and communication skills. Regarding skills of VET graduates, 11% of employers perceived that they lack understanding of the organisation, 42% perceived they lack knowledge to use modern equipment, 45% argued they have poor attitude and 28% said they have poor communication skills. On part of TET graduates, 29% of employers perceived that they lack understanding of the organisation, 61% perceived they lack knowledge to use modern equipment, 41% argued they have poor attitude and 52% said they have poor communication skills (Nkondola, 2015).

It is argued that skills gap between graduates and labour market demands are influenced by programmes that are not relevant to the requirements of the labour market; curricula that are outdated, institutions lacking appropriate tools and equipment for acquisition of practical skills or having outdated equipment bearing little resemblance to the technologies presently used by industry, which limiting the acquisition of labour marked demanded skills (NICHE, 2010). In addition, technical institutions face challenges of inadequacy human and material resources, poor funding, poor infrastructure facilities, poor preparation of lesson by teachers and poor perception of the society (Ayonmike, Okwelle, & Okeke, 2014). Thus poorly resourced technical institutions has made the education and training to remain more theoretical and graduates produced does not meet the labour market expectations.

However, it is considered that partnership would help technical institutions deliver quality education by establishing strong collaboration with the industry to strengthen resources and participate in various training related activities to provide their contribution from the respective industries. Therefore the study aimed to find out how partnership is working between technical institutions and the engineering industry.

LITERATURE REVIEW

Strong partnership between training institutions and the industry is considered as one of the critical factors enhancing the responsiveness of training to the labour market. Partnership with industry can enhance responsiveness of training to the labour market demands through encouraging mutual participation of technical institutions and industries in supporting and the provision of training. Partnership is a contract between two or more parties which have collaborative efforts, providing resources, skills and all other ingredients necessary for achieving mutual goals (Uhlik, 2007).

In the education context, it is argued that establishment of linkage between technical and vocational institutions and industries will have profound benefits on quality of education. Partnership can take place in different forms such as in curriculum development and review, identification of skills demanded by the industry, funding training activities and donation of

training facilities and equipment (Rufai, Abdulkadir, & Abdul, 2013). Partnership can also occur in terms of engaging industrial experts in teaching and assessing practical skills, academic staff attachment to industry to get exposure of the world of work (Obwoye, Mwangi, & Nyongesa, 2013) and students internships (Raihan, 2014). These collaborative efforts would enhance the capable of technical institutions to quality training and produce qualified graduates for the labour market.

Employers' engagement in curriculum development is important to provide their views and preferences to ensure relevance, validity and currency of programmes by embedding in curriculum relevant knowledge, value and skills related to current demands of the industry (Laguador & Ramos, 2014). In Australia they have established Skills Councils composed of experts from the industry which prepare training packages based on employers' skills demands for the colleges to use for developing curriculum and training students (Smith, 2010). This aims to make sure that skills trained to students are labour market oriented.

Partnership is also very important for resource collaboration since scholars perceive that competence-based education is a very expensive form of training which require adequate practical training both at the school environment and through industrial attachment to enable students master the skills demanded by the labour market (Anane, 2013), this requires collaboration in donation of funds among stakeholders.

Partnership requires the stakeholders place their money, efforts, labour and skills or some of all of them towards achieving a goal. This means that parties involved in partnership should have collaborative efforts, providing resources and all other ingredients necessary for achieving mutual goals (Uhlik, 2007). In the education context, it is argued that establishment of linkage between technical and vocational institutions and industries will have profound benefits on quality of education. Thus in order to establish effective partnership TVET institutions and industries should collaborate to organize seminars and workshops to share information on the ongoing trends and skills demands in the industry in order to incorporate them into the curriculum; funding TVET; provision of infrastructure and workshop facilities such as tools, equipment and machines for acquisition of skills to enable graduates fit into the labour market or become self-employed (Rufai et al., 2013).

Partnership also occur in terms of engaging industrial experts in teaching and assessing practical skills, academic staff attachment to industry to get exposure of the world of work (Obwoye et al., 2013) and students internships (Raihan, 2014). This will enhance effective delivery of competence based education and training and respond to the labour market demand. Partnership is important because Tanzania is one of the developing countries which the government alone cannot support each and every thing.

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Partnership is also very important to enhance financial sustainability of technical institutions and meet financial costs of training. Scholars perceive that competence-based education undertaken by technical and vocational institutions is very expensive form of training which require adequate practice both at the school environment and in the industry in order for the students to be trained and master the skills demanded by the labour market (Anane, 2013). The study conducted at Tanzania Public Service College reported among other things, the quality of education is constrained by poor allocation of funds for faculty staff training (Kavura, 2003). It is further argued that TVET teacher education in developing countries is underfunded compared to general schooling which affects its delivery quality. Shortage of fund for investment in human resource activities such as training is considered negatively affecting the quality of education in Africa (Knobel, 2015). The international Labour Organization (ILO) also reports that financing TVET education is more expensive and in developing countries the delivery of education is affected by low levels of development assistance and in the industrialized world by the effects of the economic recession on government budgets (ILO, 2010). Therefore sustainable and sufficient funding is a considered to be the prerequisite for achieving quality and relevant education provision (Grijpstra, 2015).

Therefore to enhance the capacity of technical institutions to deliver training that is responsive to the labour market demands, partnership in various forms with the industry is crucial. Such forms partnerships include collaboration in determining training needs for programmes, funding training, curriculum development and review, involvement of experts from the industry in teaching, student internships and teacher exposure to the industry.

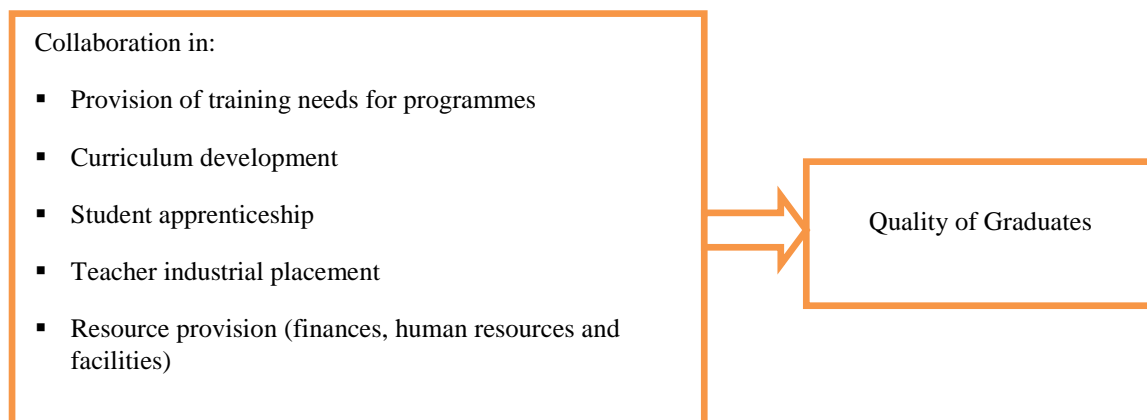


Figure 1: Conceptual Mode

Aims and Objectives

This study aimed at investigating partnership between technical institutions and the engineering industry and how it is used to enhance the provision of quality education in order to produce qualified graduates for the industry in Tanzania. Its specific research objectives are:

1. To explore the degree of partnership working between engineering institutions and the engineering industry; and

2. To find out ways in which partnership working between engineering institutions and the engineering industry can address manpower needs of the labour market in Tanzania.

METHODOLOGY

The researchers used interview methods to collect data from respondents in the sampled institutions. The interview method was face to face by visiting and meeting with the respondents and sometimes follow-ups were made using telephone interview. Interview follows the qualitative research strategy which helped to gather in-depth information from the respondents as it provides direct contact with respondents and collection of original views and providing room for more probing questions in get detailed information (Creswell, 2009). Furthermore the qualitative strategy which is considered appropriate for obtaining in-depth information using a small sample size (Nkondola & Deuren, 2017).

Sample

The selection of the colleges and industries was based on purposive sampling, targeting colleges producing engineering graduates and companies that have employed engineering graduates from technical institutions. Respondents were also selected purposefully targeting supervisors of graduates from engineering institutions and managers of technical institutions. The snowballing sampling technique was used to identify supervisors managing graduates from engineering technical institutions. Three companies were visited and 12 supervisors were interviewed and three colleges were visited and 12 managers interviewed to get their views.

FINDINGS

Generally, findings from managers of engineering technical institutions and employers in the engineering industry show that there is weak partnership working between technical institutions offering engineering programmes and engineering industry in terms of determining training needs, involvement in curriculum development, students' internship, teacher industrial attachment, involvement of experts from the industry, and resources donation. These consequently affected negatively the quality of training and graduates produced.

(i) Determining Training Needs

It was reported by both employers and managers of technical institutions that the industry is not fully involved in determining training needs for institutions. It is the respective training institution which in most cases decides what to train the students. This is different from countries like Australia and Singapore where industries of a specific sector determine needs for training. In Australia they have Skills Councils that are responsible for preparing training needs for each sector which they call training packages that registered institutions and training providers should set their programmes based to the training packages developed by the employers (Smith, 2010).

This is contrary to what is practiced in Tanzania whereby there is no existence of Skills Councils for development of skills packages or occupational profiles for training and

institutions are the main determinants of what is required to be trained hence mismatch with the labour market demands. This is an indication that training needs are not produced by the industry, hence likely to result to mismatch between the trained skills and labour market demanded skills.

(ii) Curriculum Development

It was explained that there is little participation of employers in curriculum development as a result the training provided is not relevant to the needs of the labour market. Employers said that they are not fully involved in curriculum development where they could share with training institutions skills they need from graduates in order to make them employable. For example one employer said “curricula are not in favour of the labour market needs because they are not consulted or if they consult, they consult the wrong people”. They further said that it takes long time for graduates they employ from technical institutions to master their job..

On the other hand managers from training institutions reported that they involve institutions during situational analysis when they are investigating the demand of the training programme they want to establish in order to be sure of its demand in the labour market. However, in most cases the development process of the curriculum is done by respective training institutions and thereafter submits to the National Council for Technical Education for validation and approval. This implies that during development process employers are not fully involved which affects the incorporation of skills that employers perceive are important for the labour market. Employers would help to ensure that all necessary skills are taken on board for training students, since scholars argue that involvement of employers in curriculum development is important for capturing their views and preferences to enhance relevance, validity and currency of programmes by embedding in curriculum relevant knowledge, value and skills related to current demands of the industry (Laguador & Ramos, 2014). This is an indication of existence of weak partnership in curriculum development.

(iii) Student Apprenticeship

The study observed that most of the students in technical institutions go for field study without formal arrangement between training institutions and industries. It was reported that students search themselves for organizations they want to go for fieldwork because of lack of formal arrangements, as a result they face difficulties in getting places for field placement in the industry. In addition, employers explained that there are no terms and conditions for them to supervise the students during undertaking internship hence are not well supervised. It was also explained that for some institutions the fieldwork takes a short period of time that cannot adequately exposure them to practical skills and enable them master all competencies required to become a competent person in the industry.

On the other hand, training institutions complained that some industries are reluctant to take students for field attachment and some take very few students and are reluctant to fully support and training to acquire the workplace skills. They stated further that in most cases when students are in field, employers are reluctant to expose them to modern machines used on allegation that they may disrupt the machines as they have no idea from the college as a result they just demonstrate to them because they afraid that the students might damage as they possess less knowledge on machines. This implies that training they get at the college is

not relevant to the machines available in the industry that is why employers worry about taking much time to start training students from the beginning on how to use the modern machines used in industry. For example one employers said that “every machine here looks new to students”. In a competence-based education, it was expected that the student should get practical training using the relevant machines at the college and going to the industry for utilization of the skills. Internship is among the means for students to acquire the necessary competencies (Raihan, 2014), hence the need to strengthen partnership in order for the students to get access to the organisations and for using machines and equipment during fieldwork.

(iv) Teacher Industry Placement

Teacher industry attachment is seen as one of the factors that contribute to the quality of training because teachers with industry experience or exposure are better positioned to train students' industry-led skills. However, it was revealed that in Tanzania technical teachers do not have exposure to industry hence it becomes difficult for most of them to train students work-based skills. Only one institution reported that few teachers had attended a practical training under special arrangement at Toyota Company in 2014. Institutions reported that they have no policy to send the teachers for industrial exposure to acquire work-based skills, which was also supported by employers that they do not receive teachers for field attachment. This is contrary to studies that emphasis on teacher industrial attachment (Obwoye et al., 2013), which is a signal of weak partnership.

(v) Resource Collaboration

Institutions and the industry (employers) are also supposed to contribute resources for quality training delivery. The industry is in good position to provide practical teaching experts, relevant teaching and learning equipment and financial support for implementing academic activities. Interview with technical institutions revealed that the industry has no tendency of donating resources to the colleges. The colleges depend mainly on internal funds and government subvention which are inadequate. As a result, institutions reported that they are facing shortage of funds to run their training programmes, relevant equipment for practical training and experts from the industry are not invited to institutions to train workplace skills.

However, interview with employers indicated some contribution is provided, for example Buzwagi Gold Mining was reported to have a programme known as “Integrated Mining Technical Training (IMTT)” that sponsors 15 students pursuing studies each year from the community around the mining. Within three years they have provided sponsorship to 45 students. But all employers interviewed argued that they are not involved in teaching as their experts are not invited by training institutions. These changes imply weak partnership since partnership requires collaborative efforts, providing resources and all other ingredients necessary for achieving mutual goals (Uhlik, 2007).

(vi) Graduates' Quality

There were similar perceptions among employers that the quality of graduates from technical institutions is weak. They expressed that most of the equipment used in the companies are found new to them because they seem to lack appropriate practical skills during schooling. As a result, it is perceived to take long time for them to be able to master and manage their

responsibilities. The findings are supported by other scholars who argue that there is mismatch between the quality of graduates and labour market demands in Tanzania (Kaaya, 2012).

Implication to Research and Practice

Generally, the study revealed that there is weak partnership working between the engineering industry and technical institutions offering engineering programmes in Tanzania. There is minimal engagement of engineering industries in provision of training for the delivered programmes, imbalanced collaboration in curriculum development, lack of formalized arrangements between technical institutions and companies in student field attachments, lack of policy on teacher industrial attachment, low level of resource contribution (experts, finance and equipment) by the industry. This has contributed to the lack of responsiveness of technical education to the labour market and hence contributed to low quality of graduates.

CONCLUSION

This study has revealed existence of weak partnership working between technical engineering and the engineering industry. Therefore since studies have shown that partnership is important in order for improving the quality of education provided, then we recommend the establishment of strong partnership working between technical institutions and the engineering industry in order to improve the quality of education and graduates to meet labour market personnel demands. Therefore there is need to ensure:

- a) Co-production in training and skills development by designing training programmes based on occupational profiles developed by employers in order to take on board workplace skills required by employers;
- b) Collaboration in curriculum design and development so that learning outcomes are developed based on job profiles and requirements of the employers and ensure that relevant work-based skills are incorporated into the curriculum;
- c) Training institutions and employers have formal agreements and terms of field attachment for the students taking apprenticeship in industry in order to provide the students with good supervision and adequate time to acquire workplace skills and behaviours;
- d) Teachers are exposed to machines and facilities used in the industry in order to be able to train students using the modern machines and technology applied in the industry; and
- e) Industries contribute resources in terms of funds, experts and equipment to training institutions to enhance the capacity of training institutions to train relevant skills required in the industry.

Areas for Future Research

The study has just focuses on engineering colleges and the engineering industry, with limited sample and focused only on qualitative research strategy. This could have affected the generalization of the study. Therefore, more studies need to be undertaken to cover other

sectors, use broad sample and application of quantitative or mixed methods research approach. Such studies will complement this study and provide a more broad picture on partnership working between technical institutions and the industry.

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