



Technical Vocational Education and Training Institutions and Industry Collaboration: Analysis of Benefits, Strategies and Challenges

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ABSTRACT

The study determines the benefits, strategies and challenges hindering industrial-Technical Vocational Education and Training (TVET) institutions collaboration. The research design for this study was a descriptive survey which was carried out in Yobe State. The population of the study was 671 which constituted the sample for the study. Three research questions were answered and one hypothesis was tested at 95% level of significance. An instrument Industrial-Institutional Collaboration for Effective TVET Programme (ICETP) with a content validity index of 0.83 and a reliability index of 0.91 was used for data collection. Data collected were analyzed using mean, standard deviation and ANOVA. It was found among others that lack of legislation to compel industries to accept student and inabilities of industries to influence curriculum are the main challenges hindering the collaboration exercise. The study recommended among others that government should enact a legislation to compel the industries to be active partners in the training of students and allow industries participate in the curriculum development of the schools regarding students training.

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INTRODUCTION

National development depends largely on the technical skilled manpower produced by Technical Vocational Education and Training (TVET) institutes for industry, commerce and agriculture. According to Nwogu (2009), the well-being of any nation largely depends on its sustainable industrial and economic development. Usoro, Usoro, Akpan and Otu (2010), define development in terms of reduction in the levels of poverty, illiteracy, and unemployment and income inequality. The main objective of national development is to raise the standard of living and the general wellbeing of the people where almost everybody can be self-reliant. TVET constitutes a vital engine for the development of any nation. It has been identified as a tool for sustainable, virile and stable economy and plays a major role at promoting community and national development (Oguntuyi, 2013). It is a national tool for empowering its citizens for sustainable livelihood, social and economic development. The United Nation Educational, Scientific and Cultural Organization (UNESCO) and International Labour Organization's (ILO) 2001 General Conference on TVET, recommended TVET for the twenty-first century as those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences,

and the acquisition of practical skills, attitudes, understanding and knowledge related to occupations in various sectors of the economic and social life (UNESCO & ILO, 2002). This is in line with the overriding goals of TVET in Nigeria to: provide trained manpower in the applied sciences, technology and business particularly at craft, advanced craft and technical levels; provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; give training and impart necessary skills to individual who shall be self-reliant economically (Federal Republic of Nigeria [FRN], 2009).

The term TVET is used to mean education geared towards skill acquisition for gainful employment. TVET is a programme that propels learners to develop profitable social habits required by the society and/or facilitate practical skills acquisition that is generally believed to be more relevant to the development of a nation. It is a planned programme of course and learning experiences that begin with the exploration of career options, supports basic, academic and life skills, and enables the achievement of high academic standards, leadership, preparation for industry and continuing education (Career and Technical Education [CTE], 2009). Audu, Igwe and Onoh (2013) considered TVET as an instrument

that can be effective in promoting socioeconomic progress. Investments in TVET is seen as an approach to increasing economic competitiveness and reducing poverty increasing productivity, employability and sustainable national development (Wallenborn, 2010). It is recognized, according to Samuel and Kissi (2013), as an important subsector for the attainment of the industrial development in Nigeria.

Rashtriya (2005) pointed out that the wealth and prosperity of a nation depends on the effective utilization of its human and material resources through industrialization. Without skilled technical manpower produced by the technical and vocational institutes for industry, commerce and agriculture, national development would virtually grind to a stand-still (Budu-Smith, 2005). Unfortunately, Nigeria does not seem to give vocational and technical education the attention it deserves. TVET programmes deliveries are of poor quality and the delivery systems are not properly coordinated and in most cases there is no proper regulations followed in the implementation of its curriculum. Skills offered are in many cases of low quality, which can't fit in well with the competitive global not suited to actual socio-economic conditions, production needs and industrial requirement (Henry, Jack & Getrude, 2014). This appears to be one of the reasons for rising rate of unemployment and poverty in Nigeria. This is because the youth and graduates from tertiary institutions are not equipped with adequate skills that will enable them exploit the natural resources that abound in Nigeria.

Most of the TVET learning institutions are unable to combine theoretical training with practical exposure in order to produce qualified graduates for direct absorption into industry. TVET should therefore be in line with the needs and demands of the current industrial development needs (Harrison & Reddan, 2010). There is a need therefore for strong industry collaboration and improved practical training in industry as well as a platform for seconding staff in the technical and vocational institutes to gain some useful practical experience in industry in order to improve teaching and learning. This will provide opportunities in industry for TVET teachers to regularly update their workplace experience and will also help to develop appropriate curricular that is relevant to employers' needs. This will enhance relevance of technical vocational education and ensure that training is guided by competencies endorsed by industry so that TVET graduates would acquire and demonstrate skills

that meet the needs and specific standards of industry.

The collaboration is necessary to achieve the desired goals of TVET and human resource development. Yusuff and Soyemi (2012) stated that the country's present TVET system is largely supported by the public sector which is not likely to improve the knowledge and skills that Nigeria needs badly. This is to say that the task of TVET provision cannot be tackled by government alone. Collaboration with industries in partnership will be essential if the goals and potentials of Nigerians are to be realized using TVET for sustainable national development. In addition, Government, communities, industries, religious organizations, Non-Governmental Organizations, wealthy individuals in the society etc should be encouraged in the funding of TVET for the smooth running of TVET in terms provision of infrastructural and workshop facilities such as tools, equipment and machines for the acquisition of skills by the graduates of TVET programme to enable them fit into the labour or be gainfully employed in industries or related organizations or to become self-employed in order to contribute to the socioeconomic development of Nigeria. This is because Nigeria industrial development goals cannot achieve any meaningful results without paying particular attention to TVET at all levels. Maigida (2014) maintained that if TVET is to be meaningful and successful in Nigeria, then partnerships are needed to industries. Maigida further stated that though TVET-industrial collaboration in Nigeria exists at: policy, training, design and development levels with the United Nations Education, Scientific and Cultural Organizations (UNESCO); UNESCO-BREDA-Regional Bureau for Education Development in Africa; Africa Development Bank (AFDB); United Nations Development Program (UNDP); International Labor Organization (ILO); similarly National Board for Technical Education (NBTE) is into partnership with different organizations in Nigeria to facilitate TVET Development but at present teaching takes place mainly in the form of head-on learning by teachers. Many of the TVET institutions are unable to combine theoretical training with practical exposure in order to produce qualified graduates for direct absorption into industry. A successful collaboration will improve service delivery by allowing both school and industries do best; improve cost-effectiveness; increased investment in public infrastructure etc. The following challenges of TVET-industrial collaboration identified by Maigida (2014) are outlined as:

1. Mismatch between industries and TVET programme
2. Lack of involvement of industries in development and endorsement of national quality standards in many nations of the world to TVET programme
3. Industries are not consulted during the accreditation process of a course curriculum in formal and informal TVET institutions
4. Training needs are not always identified and prioritized according to industry skills and workforce development
5. TVET institutions do not have the capacity to deliver the training that industry requires
6. Inadequate investment in training infrastructure, facilities and staff development
7. Limited provision of participation in the policy formulation/review process by the representatives from industries
8. Political consideration in making partnership with the industrial organization can make the initiative failed
9. Working with Government may take a long time and decisions and actions can be slowed down unnecessarily by bureaucracy.

There is a need therefore for strong industrial collaboration and improved practical training in industry as well as a platform for seconding staff in the TVET institutes to gain some useful practical experience in industry in order to improve teaching and learning. This study focuses on the challenges in industrial-institutional collaboration for effective TVET programme for enhancing national development.

Research Questions

1. What are the challenges in industrial-institutional collaboration for the effective TVET programme?
2. How to collaborate industries to TVET institutions effectively?
3. What are the benefits of industrial-TVET institutions collaboration?

Hypothesis

The mean responses of teachers, students and industrialists are not significantly different.

METHODOLOGY

The research design for this study was a descriptive survey. Survey research design was used because the study made use of structured questionnaire which was used to elicit response from the sampled respondents and the findings were generalized on the whole population. The study was carried out in TVET institutions and industries in Yobe State which comprise Federal College of Education (Technical) Potiskum, Federal Polytechnic Damaturu and Mai Alooma Polytechnic Geidam; Yobe Feed and Flour Mill Potiskum and Yobe Fertilizer Company Gujba. The population of the study was 671 made up of 168 TVET lecturers, 472 final year TVET students and 31 industrialists. The entire population was involved in the study because of its manageable size.

The study utilized a self-administered structured questionnaire titled: Industrial-Institutional Collaboration for Effective TVET Programme (ICETP) developed by the researchers from literature reviewed for data collection from the respondents. Each ICETP item had a four point response scale of strongly agree, agree, disagree, and strongly disagree with corresponding values of 4, 3, 2 and 1 respectively. The instrument ICETP was pilot tested on 10 students and 10 lecturers at Federal College of Education (Technical) Gombe and 10 industrialists at Ashaka Cement Company Ashaka all in Gombe State. After the pilot study, a content validity index of 0.83 was obtained; this was judged to be acceptable, as it is more than the 0.70 value recommended minimum (Wynd, Schmidt & Schaefer, 2003). The ICETP also yielded a Cronbach's alpha reliability index of 0.91, also deemed acceptable in comparison with the 0.70 recommended minimum (Santos, 1999).

Data collected for the study was analyzed using mean, standard deviation and analysis of variance (ANOVA). In order to determine the challenges, strategies and benefits of industrial-TVET institutional collaboration, a mean cut-off of 2.50 was chosen. Therefore, any item with a mean score of 2.50 or above was agreed, while item with a mean score below 2.50 was not agreed. For testing null hypothesis, if calculated f-value was greater than or equal to f-critical value at five percent level of significance, then reject null hypothesis but if otherwise, do not reject the null hypothesis. All statistical analysis was performed with Statistical Package for Social Sciences (SPSS) software.

RESULTS

Research Question 1: What are the challenges in industrial-institutional collaboration for the effective TVET programme?

Table 1: Challenges in Industrial-TVET institutional collaboration

S/N	Challenges	\bar{X}	δ	Remark
1	lack of legislation to compel industries to accept student	3.41	0.56	agree
2	lack of administrative structure in the form of liaison officers	3.23	0.62	agree
3	inabilities of industries to influence curriculum	3.67	0.48	agree
4	lack of resource to convey students to and from industrial site	3.19	0.97	agree
5	lack of communication between TVET institutions and industries	3.68	0.51	agree

Table 1 indicates that the mean (\bar{X}) responses ranged from 3.19 to 3.68. All the challenges had their mean scores above the cut-off point of 2.50, which indicated that are factors

impinging effective collaboration of industries and TVET institutions. The standard deviation (δ) ranged from 0.48 to 0.97. This implies that respondents were very close in their ratings.

Research Question 2: How to collaborate industries to TVET institutions effectively?

Table 2: Strategies for Industrial-TVET institutional Collaboration

S/N	Collaboration strategies	\bar{X}	δ	Remark
1	through liaison officers between schools and industries	3.45	0.89	agree
2	invitations from industries to participate in the form of seminars in the training of students	3.76	0.39	agree
3	placements of students to industries during school programme	3.43	0.68	agree
4	adequate resources for transporting students to and from industries site during school hours	3.20	0.95	agree
5	allow industries to participate in the curriculum development	3.69	0.47	agree
6	enact a legislation to compel the industries to be active partners in the training of students	3.76	0.58	agree

Table 2 indicates that the mean (\bar{X}) responses ranged from 3.11 to 3.76. All the collaboration strategies had their mean scores above the cut-off point of 2.50, which indicated

that are means for effective collaboration of industries and TVET institutions. The standard deviation (δ) ranged from 0.39 to 0.95. This implies that respondents were very close in their ratings.

Research Question 3: What are the benefits of industrial-TVET institutional collaboration?

Table 3: Benefits of Industrial-TVET institutional Collaboration

S/N	Benefits of collaboration	\bar{X}	δ	Remark
1	students gain up-to-date practical experience	3.85	0.36	agree
2	students gain more practical experience	3.85	0.34	agree
3	enable trainees to get or create job after graduation	3.67	0.49	agree
4	help trainees get well paid jobs after graduation	3.10	0.51	agree
4	employers get well trained labour force	3.76	0.60	agree
5	high productivity in industry	3.12	0.76	agree
6	improve cost-effectiveness	3.41	0.54	agree

Table 3 indicates that the mean (\bar{X}) responses ranged from 3.10 to 3.85. All the benefits had their mean scores above the cut-off

point of 2.50, which indicated that are benefits of effective collaboration of industries and TVET institutions. The standard deviation (δ) ranged

from 0.34 to 0.76. This implies that respondents were very close in their ratings.

Hypothesis: The mean responses of teachers, students and industrialists are not significantly different.

Table 4: ANOVA of Teachers, Students and Industrialists' Responses Regarding the Challenges, Strategies and Benefits of Effective Industrial-TVET institutional Collaboration

Source of variation	Sum of square	df	Mean square	f-cal	f-table	Remark
Between groups	0.041	2	0.021	0.22	3.89	Not Rejected
Within groups	1.128	12	0.094			
Total	1.169	14				

$N_{\text{Students}}=472, N_{\text{Teachers}}=168, N_{\text{Industrialists}}=31, P>0.05 (P=0.806)$

Table 4 showed that there are no significant differences in the mean responses across teachers, students and industrialists regarding the challenges, strategies and benefits of effective industrial-TVET institutional collaboration at $P=0.806$ which is greater than level of significance 0.05. This is also evident from the table since the f-calculated value of 0.22 is less than the f-tabulated value of 3.89 at five percent level of significance. The hypothesis was not rejected.

DISCUSSION

The findings of the study were discussed in relation to challenges hindering effective industrial-TVET institutional collaboration, how the collaboration can come about and the benefits of the effective collaboration. Several challenges were identified as hindering industrial-TVET institutional collaboration. This is agreement with the findings of Amu and Christine (2011) and Maigida (2014) where they found out the main challenges hindering industrial-TVET institutions collaboration are students' negative attitude towards the industrial attachment programme, unavailability of resources, absence of legislation, lack of involvement of industries in development and endorsement of national quality standards and TVET curriculum development and also political consideration in making partnership with the industrial organization make the initiative failed.

The study identified various ways to collaborate industries to TVET academic programme. Prominent among these are enacting a legislation to compel the industries to be active partners in the training of students, allow industries to participate in the TVET curriculum development and invitations from industries to participate in the form of seminars in the training of students. The findings also show that effective collaboration can lead to multiple benefits to the

TVET programme which is a tool for national development. This is in line with Asare-Bediako's (2005) findings that the linkage between schools and industries can facilitate the placement of graduate into work after school and, in some cases, monetary benefit for the individual students and even the department itself in the long term.

Ultimately, the findings of the study indicate that work experience leads to a higher probability of getting employment, and so the individual student benefits most from industries-TVET institutions collaboration. During their attachment industry, the employer also benefits from the services of the trainee. Industrial-TVET institutions collaboration is therefore, mutually beneficial to both TVET institutions and industries.

CONCLUSION

The primary objective of TVET is to prepare for the country labour force meeting needs of the labour market, to enable people contribute to national development. This objective is yet to be achieved because the training and the skills offered are of less quality which cannot fit in well with the competitive global and production needs and industrial requirement for national development. For effective TVET programme, there is a need therefore for industry to collaborate with the TVET institutions in training to produce quality graduates with employable skills. The study identified challenges hindering this collaboration, strategies for effective collaboration and the benefits of the collaboration.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. Government should enact a legislation to compel the industries to be active partners in the training of students



2. Seminars, field trips and excursions should be incorporated into the academic curriculum of the schools
3. TVET institutions should have liaison offices that are well versed in public relations and industrial practices to help create effective collaboration
4. TVET institutions and industries should collaborate to organize seminars and workshops where they will share information on the changing trends in industrial practices and how these changes can be incorporated into the curriculum of the schools
5. Students should be placed to industries during school programme
6. Industries should participate in the curriculum development of the schools to have input into the curricula regarding their training.

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