



A survey of the challenges to industrial development in Nigeria's skill development effort in Technical and Vocational Education and Training

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Abstract

This study surveyed the challenges to industrial development in Nigeria's skill development effort in Technical and Vocational Education and Training using a 5-point scale questionnaire on 275 randomly sampled respondents from North central Nigeria. Mean, standard deviation and z-test statistics were used to analyze data collected at 0.05 level of significance. Findings of the study revealed among others that the management is faced with challenges of poor managerial skills; the instructors faced with the challenge of non availability of training facilities to teach practical skills needed by industry while the trainees faced with challenge of acquiring obsolete skills that cannot enhance industrial development. The study recommended among others that all stakeholders should periodically organize practical training in the work skills required by industry to enhance industrial development in Nigeria.

Keywords: Industrial development, skill development, challenge, Technical and Vocational Education and Training.

Introduction

Development can be seen as an idea that embodies all attempts to improve the conditions of human existence in every aspects of life. The Department for International Development (DFID)(2007) defined industrial development as the growth of industries and its associated economic impact. It encompasses expansion activities in the industries and their economic effect on the welfare of a nation. If carried out in a sustainable manner, industrial development has the potential to help achieve a variety of objectives such as employment, poverty eradication, gender equality, labour standards, and greater access to education and healthcare. The more developed a country's industrial capacity, the greater the potential for economic growth and development. To be sustainable in the long term, industrial development needs to be based on sustainable use of a nations' natural resources and indigenous technology.

To promote and achieve industrial development in any nation requires effective skills development in the citizens both at the institutional level and in the work force. A skill denotes expertise or ability developed in the course of training and experience. According to Kenneth and Robert (2013), skills development refers to the acquisition of practical competencies, know-how and attitudes necessary to perform in a trade or occupation in the labour market. Skills development is vital for industrial development but skills cannot be obtained in a vacuum. In Nigeria, practical skills can be acquired either through formal or informal Technical and Vocational Education and Training (TVET) institutions and training centers. The formal TVET institutions include technical colleges, polytechnics, monotronics, and Colleges of Technology, among others.

The informal skills development sector includes government approved vocational training centers; private owned skill acquisition centers or workshops as well as skill acquisition centers owned by industries and organizations. The Nigeria government in recognition of the relevance of skills development established TVET institutions and training centers for the education and training of youths to meet the manpower requirement needed in the industries to enhance industrial development in Nigeria. Federal Republic of Nigeria (FRN)(2013) defined Technical and Vocational Education and Training as a comprehensive term referring to 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 relating to occupations in various sectors of economic and social life. TVET gives individuals the skills to live, learn and work as productive citizen. It reduces the over dependence of graduates on government for employment.

Despite the Nigeria government huge investment effort in TVET, both the formal and informal TVET programmes facing numerous challenges which have hampered industrial development in Nigeria. A challenge according to Hornby (2014) is anything that inhibits progress towards achieving an objective. The TVET programmes are facing numerous challenges ranging from human resources to inadequacy of training facilities in the training institutions and centers. This study however focuses on surveying the challenges bothering on the human resources such as management, instructors and trainees challenges in technical colleges and vocational training centers for the purpose of understanding the current situation and plan necessary intervention to enhance industrial development in Nigeria through TVET.

Statement of the Problem

The Nigeria government industrial development effort through establishment of TVET institutions and training centres is supposed to enhance skill development and empower youths with the required work skills for self reliance and employment in various TVET occupations in the industries to enhance industrial development in Nigeria. Despite several government efforts, many industries complained that over 70 percent of Nigeria TVET graduates at various levels lack the required work skills for employment thereby hindering industrial development (Ngozi, 2014). It appears as if several TVET graduates are still unemployed because they find it difficult to practice their trades upon graduation. A clear indicator to support the alarming rate of youth unemployment is the trampling of job seekers to death during stampedes at the Nigeria Immigration Service (NIS) recruitment exercise on 15th March, 2015 in various recruitment centers in the country especially in Abuja and Niger state that recorded high casualty among the job applicants.

Odigiri and Ogwo (2013) revealed that the technical skills development in Nigeria's TVET sector is bedeviled with numerous challenges bothering on human and non human resources which have consequently hindered industrial development in Nigeria. The challenges faced by TVET in providing qualified industrial manpower in Nigeria is the reason why most Nigeria industries depend more on expatriate artisans, craftsmen and technicians who are highly paid and valued than their Nigeria counterpart. It is therefore imperative to carry out a survey of the challenges to industrial development in Nigeria's skill development effort in TVET for the purpose of understanding the current situation and plan necessary intervention to enhance industrial development through TVET.

Purpose of the Study

The purpose of the study was to survey the challenges to industrial development in Nigeria's skill development effort in Technical and Vocational Education and Training. The study specifically determined:

1. The management challenges to industrial development in Nigeria's skill development effort in TVET.
2. The instructorship challenges to industrial development in Nigeria's skill development effort in TVET.

3. The trainee challenges to industrial development in Nigeria's skill development effort in TVET.

Research Questions

The following research questions were raised to guide the study:

1. What are the management challenges to industrial development in Nigeria's skill development effort in TVET ?
2. What are the instructorship challenges to industrial development in Nigeria's skill development effort in TVET ?
3. What are the trainee challenges to industrial development in Nigeria's skill development effort in TVET ?

Research Hypotheses

The null hypotheses below were tested at 0.05 level of significance.

H₀₁: There is no significant difference in the mean responses of senior TVET staff and trainees on the management challenges to industrial development in Nigeria's skill development effort in TVET.

H₀₂: There is no significant difference in the mean responses of senior TVET staff and trainees on the instructorship challenges to industrial development in Nigeria's skill development effort in TVET.

H₀₃: There is no significant difference in the mean responses of senior TVET staff and trainees on the trainees' challenges to industrial development in Nigeria's skill development effort in TVET.

Methodology

The study adopted descriptive survey research design in which a 32 item questionnaire structured on a modified five point Likert scale was used to collect data. The target population of the study comprised of all senior TVET staff (administrators, teachers & master trainers in technical colleges and training centers) and all trainees (students in technical colleges and training centers) in all the technical colleges and vocational training centers in North Central Nigeria (Benue, Kogi, Niger, Plateau, Kwara and Nasarawa state as well as Federal capital territory, Abuja). A total of 275 respondents consisting of 98 senior TVET staff and 177 trainees were randomly sampled and used for the study. The questionnaire were rated as Strongly Agree (5), Agree (4), Disagree (3), Strongly Disagree (2) and Undecided (1). The questionnaire was

validated by three lecturers from the Department of Industrial and Technology Education (ITE) of Federal university of Technology, Minna and the reliability of the instrument pilot tested was found to be 0.89 using Cronbach Alpha reliability statistics. Out of 275 questionnaires given out, 264 were returned, that is 96% return rate. The research questions were answered using mean and standard deviation while z- test statistics was used to test the null hypothesis at the .05 level of significance.

The items with mean score of 3.5 and above were regarded as acceptable (Agreed) while items with mean score below 3.5 were rejected (Disagreed). The items with 3.5 and above was regarded as acceptable because 3.5 is the lower limit of agree when 5 points rating scale is used. Hypotheses were accepted when z- calculated (z-cal) value were less than the z- table (z-critical) value of ± 1.96 while hypotheses were rejected when z- calculated were more than z- table value of ± 1.96 based on a degree of freedom (df) of 273 (NI+N2-2). The z-test statistics was considered suitable because according to Uzoagulu (2011) the z-test statistics is more appropriate when the sample size (n) is greater than 30 but maintains the same parametric assumptions, table usage and other conditions as in the application of t-test statistics.

Results

Research Question 1 and Hypothesis 1

Table 1: Mean responses and z-test analysis of respondents on the management challenges to industrial development in Nigeria’s skill development effort in TVET.

S/N	ITEM STATEMENT	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	\bar{X}_A	z-cal	Rem
1	Use of non professionals to manage some TVET institutions & training centres.	3.65	0.76	3.72	0.71	3.69	1.13	A & AC
2	Poor managerial skills (planning, organizing, motivating & controlling) among TVET administrators.	3.56	0.52	3.49	1.09	3.53	0.85	A & AC
3	Corruption, misappropriation of TVET funds & irregularities in funding provision.	4.66	0.76	3.81	0.45	4.24	0.96	A & AC
4	Poor linkage & partnership between TVET institutions & industry.	4.22	1.86	3.61	0.73	3.92	0.95	A & AC
5	TVET training is not structured to meet the current industrial needs.	4.11	0.68	4.14	1.26	4.13	0.54	A & AC
6	Disregard for the needs of TVET in the informal sector.	3.65	0.73	4.13	0.54	3.89	0.81	A & AC
7	Lack of follow up & continuity in management policies.	4.11	0.84	3.91	0.75	4.01	1.23	A & AC
8	Inconsistency in monitoring & supervision of TVET programme activity.	3.89	0.48	3.10	0.75	3.50	1.12	A & AC
9	Non existence of standardized document to guide implementation & certification in informal sector TVET.	3.40	0.78	3.94	0.35	3.67	0.45	A & AC
10	Negligence to research results on TVET programme evaluation.	3.82	0.34	3.20	0.59	3.51	0.57	A & AC
11	Capital intensive nature of procuring TVET training facilities.	3.66	0.76	3.81	0.45	3.74	0.96	A & AC

Key: Rem=Remark; A=Agreed; D=Disagreed; AC=Accepted; \bar{x}_1 =Mean of senior TVET staff; \bar{x}_2 = Mean of Trainees; \bar{x}_A =Average mean;SD₁=Standard deviation of TVET staff; SD₂= Standard deviation of trainees; z-cal =z-test calculated, z- table (z-critical) value = ±1.96.

Findings from data analysis on table 1 revealed that the entire respondents agreed with all the items presented as management challenges to industrial development in Nigeria’s skill development effort in TVET based on the decision that the mean rating of all the items are above the acceptable level of 3.50. Table 1 further reveals that all the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is accepted.

Research Question 2 and Hypothesis 2

Table 2: Mean responses and z-test analysis of respondents on the instructorship challenges to industrial development in Nigeria’s skill development effort in TVET.

S/N	ITEM STATEMENT	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	\bar{X}_A	z-cal	Rem
12	Inadequate practical training given to instructors affects the practical training of trainees.	3.51	1.2	3.53	1.23	3.52	0.67	A & AC
13	Lack of industrial attachment for upgrading TVET teachers’ skills affects teaching of practical skills.	3.75	0.55	3.26	0.74	3.51	0.81	A & AC
14	Poor remuneration & lack of motivation discourage TVET instructors from workshop practice.	3.78	0.65	3.21	0.85	3.50	0.74	A & AC
15	Inappropriate teaching methods affect practical skill training.	3.40	1.23	3.83	1.11	3.61	0.75	A & AC
16	Inability to control large class size during practical skill training.	3.10	0.12	3.92	0.54	3.51	0.54	A & AC
17	Instructors find it difficult to teach skills in the absence of adequate modern training facilities.	3.45	1.43	3.65	0.75	3.55	1.43	A & AC
18	Too much emphasis on theoretical aspect of TVET against practice during instructional delivery.	4.14	0.36	3.91	0.43	4.03	1.34	A & AC
19	Poor attitude of TVET teachers towards improvisation of training equipment.	4.32	1.21	3.56	1.32	3.94	0.38	A & AC
20	Poor professional, personal & public image accorded to TVET teachers in the society.	3.61	0.46	3.49	1.12	3.55	0.57	A & AC
21	Absence of in-service programme for continual advancement of TVET teachers education.	3.21	0.78	3.11	0.89	3.16	1.57	D & AC
22	Erratic electric power supply to power training tools & machines.	3.14	0.36	2.91	0.43	3.03	1.34	A & AC

Findings from data analysis in table 2 revealed that the respondents disagreed with item 21 as a challenge to instructors but agreed with the remaining items presented as instructorship challenges to industrial development in Nigeria’s skill development effort in TVET based on the decision that the mean rating of item 21 is below 3.50 while that of the remaining items are above the acceptable level of 3.50. Table 2 further reveals that all the items were accepted

indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is upheld.

Research Question 3 and Hypothesis 3

Table 3: Mean responses and z-test analysis of respondents on the trainees’ challenges to industrial development in Nigeria’s skill development effort in TVET.

S/N	ITEM STATEMENT	\bar{X}_1	SD ₁	\bar{X}_2	SD ₂	\bar{X}_A	z-cal	Rem
23	Difficulty in securing industrial attachment in appropriate industry.	4.09	0.36	4.10	0.70	4.10	1.21	A & AC
24	Negligence of industries towards accepting trainees for industrial attachment.	3.70	1.31	3.33	0.65	3.52	1.30	A & AC
25	High priority accorded to general education by the society over TVET demoralizes trainees.	3.30	0.83	3.81	1.27	3.56	0.60	A & AC
26	Haphazard sequence of vocational training in the informal sector.	4.28	0.32	4.05	0.81	4.17	0.80	A & AC
27	Irregularities & delay in payment of stipend to trainees in government vocational training centers.	4.34	1.20	3.47	0.72	3.90	0.69	A & AC
28	Difficulty in purchasing information & communication technology devices needed for learning skills.	3.50	1.39	3.06	0.63	3.78	0.57	A & AC
29	Inconsistencies in the financial settlement scheme for TVET graduates willing to practice their trades.	3.29	1.29	3.77	0.74	3.53	0.71	A & AC
30	The societal view that TVET programme is for unintelligence & under achievers reduces trainees’ interest.	4.10	0.75	3.71	0.11	3.91	1.48	A & AC
31	The availability of obsolete training facilities leads to acquisition of outdated skills that are irrelevant to industries.	4.20	1.30	4.01	0.64	4.11	1.42	A & AC
32	Trainees’ laziness & lack of focus on skill acquisition on a particular trade.	4.41	0.45	4.36	0.81	4.39	0.68	A & AC

Findings from data analysis in table 3 revealed that the respondents agreed with all the items presented as trainee challenges to industrial development in Nigeria’s skill development effort in TVET based on the decision that the mean rating of all the items are above the acceptable level of 3.50. Table 3 further reveals that all the items were accepted indicating that there is no significant difference between mean responses of the respondents. Hence, the null hypothesis is accepted.

Summary of Findings of the Study

Based on the data collected and analyzed, the following findings emerged:

1. The management challenges to industrial development in Nigeria’s skill development effort in TVET includes use of non professionals, poor managerial skills, corruption, misappropriation of TVET funds, capital intensive nature of procuring TVET training facilities, negligence to research results on TVET programme evaluation, non existence of

standardized document to guide implementation & certification in informal sector TVET, among others.

2. The instructorship challenges to industrial development in Nigeria's skill development effort in TVET includes inadequate practical training given to instructors, lack of industrial attachment for upgrading TVET teachers' skills, poor teacher remuneration & lack of motivation towards workshop practice, inappropriate teaching methods, large class size, inadequate modern training facilities, poor attitude of TVET teachers towards improvisation, erratic electric power supply, among others. The respondents agreed that there is in-service programme for continual advancement of TVET teachers' education.
3. The trainee challenges to industrial development in Nigeria's skill development effort in TVET includes difficulty in securing industrial attachment in appropriate industry, poor societal attitude towards TVET, haphazard sequence of vocational training in the informal sector, difficulty in purchasing information & communication technology (ICT) devices needed for learning skills, irregularities & delay in payment of stipend to trainees in government vocational training centers, inconsistencies in the financial settlement scheme for TVET graduate willing to practice their trade, laziness & lack of focus on skill acquisition on a particular trade, among others.
4. There is no significant difference between mean responses of the respondents on the management challenges to industrial development in Nigeria's skill development effort in TVET.
5. There is no significant difference between mean responses of the respondents on the instructorship challenges to industrial development in Nigeria's skill development effort in TVET.
6. There is no significant difference between mean responses of the respondents on the trainee challenges to industrial development in Nigeria's skill development effort in TVET.

Discussion of Findings

The findings of the study as shown in table 1 revealed that 100% of the listed items were found to be among the management challenges to industrial development in Nigeria's skill development effort in TVET. The findings of the study is in agreement with the findings of Ofor (2001) who conducted a study on the evaluation of manpower requirement of the national directorate of employment training centers in Abuja and found out that, the dearth of skilled

manpower needed for the advancement in technologies in various industries has raised an urgent need to promote standardization of skills acquisition programmes at training centers in Nigeria. To buttress this, Ogbuanya, Bakare and Igweh (2010), revealed that most telecommunication industries have continued to complain about not finding the right skills in the labour market to fill the job vacancies even with the large turn out of graduates from both formal and informal TVET institutions at all levels of educational system. Ogbuanya, Bakare, and Igweh attested that, this is so because the skills acquired by the graduates from these institutions are not tailored to meet the necessary requirement of these industries. Therefore, the need for standardization of trainings in order to promote the availability of manpower with appropriate technical and vocational skills required to meet the various needs of industries is essential.

The findings of the study as shown in table 2 revealed that over 90% of the listed items were found to be among the instructorship challenges to industrial development in Nigeria's skill development effort in TVET. The study also revealed that availability of in-service programme in TVET institutions is not a challenge, as respondents agreed that there is in-service programme for continual advancement of TVET teachers. The findings of the study is similar to the findings of Ogwo (2004) who carried out a study on skills development and found out that, most technical college classrooms and vocational training centers in Nigeria are overcrowded with trainees who find it difficult to understand practical sequence due to the pressure involve in learning practical skills. It is in recognition of the challenge and negative effect of overcrowding or large class size in TVET programmes that the Federal Republic of Nigeria in her national policy on education (FRN, 2013) stated that, for effective participation of students in practical work, the teacher students' ratio shall be kept at 1:20.

This teacher student ratio has never been adhered to in public formal and informal TVET institutions and training centers in Nigeria. Similarly, Aghenta (2009) in a study on methods in vocational education in Nigeria, found out that the overcrowding results from large class size in TVET institutions and training centers and is the major reason while instructors use inappropriate teaching methods which result in inculcating in the trainees, trial and error method of solving practical problems. Therefore, the TVET graduates upon graduation finds it difficult to gain employment in the industries because the trial and error method is no longer needed by the industries due technological devices currently in use to enhance problem solving.

Even there is in-service programme for continual advancement of TVET teachers, the challenges resulting from inadequate practical training given to them and lack of industrial attachment for upgrading TVET teachers and master trainers practical skills need to be addressed. In line with this, Odigiri and Ogwo (2013) in a study on technical skills needs of technical college teachers found out that no educational programme can rise above the quality of its teachers and no teacher can teach a practical skill which he or she does not possess. Therefore, there is need to regularly update the teacher training curriculum every three years and emphasize more practical content to cope with new innovations in technology.

The findings of the study as shown in table 3 revealed that 100% of the listed items were found to be among the trainees challenges to industrial development in Nigeria's skill development effort in TVET. Corroborating the haphazard sequence of vocational training in the informal TVET sector, Okorie (2000) in a study on Nigeria workforce found out that, the training provided by the informal TVET sector falls below modern training procedures. Okorie (2000) stated that the training is unorganized, devoid of formal orientation and lacks structured curriculum for training sequence. What is taught to trainees depends on the job or maintenance problem at hand. The mode of training and instruction is mostly by observation, practice, trial and error method. The trainees upon graduation therefore suffer unemployment, underemployment and also finds it difficult to adapt in modern industrial work environment where standardized training procedures are adopted. The difficulty of students in securing industrial attachment in appropriate industry as well as the negligence of industries towards accepting trainees for industrial attachment is currently a serious challenge that affects skills development in TVET programmes.

Olusegun (2010) conducted a study on effectiveness of Student Industrial Work-Experience Scheme (SIWES) and found out that, some students find it difficult to secure appropriate industry for industrial attachment because most students are searching for industries that pay students on training. Some students that are accepted for attachment in an appropriate industry, even during training they disturb the industrial management to pay them salary while on attachment. The desire by students to get paid while on industrial attachment or training has made many industries to develop lukewarm attitude and negligence towards accepting them for industrial attachment, thereby hindering avenue for skills development needed for industrial development in Nigeria. The study found no significant difference in the mean ratings of the

responses of the respondents on the challenges to industrial development in Nigeria's skill development effort in Technical Vocational Education and Training. Hence, the opinions of the respondents did not differ in majority of the items identified. Therefore, the null hypotheses for the study were upheld.

Conclusion

Based on the findings of the study, it was concluded that the challenges to industrial development in Nigeria's skill development effort in Technical Vocational Education and Training are numerous and bothers more on challenges concerning management, instructor, trainees as well as inadequate modern training facilities. If the Nigeria TVET programme is to gain relevance, achieve its objectives and produce technical manpower to promote industrial development, then there is need for Nigeria government at various levels, industries as well as other stakeholders to intensify effort to find solution to the challenges confronting industrial development in Nigeria's skill development effort in Technical Vocational Education and Training.

Recommendations

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

1. Periodically, senior TVET staff and master trainers in management training should enhance their managerial skills.
2. TVET instructors and master trainers should update their practical skills and pedagogical competence needed to teach practical skills.
3. Trainees should be oriented on the relevance of TVET to industrial development, self reliance and wealth creation.
4. TVET institutions and training centers should make efforts to generate fund internally through lunching and appeal fund cards from time to time to enable them buy consumables for practicing skills acquisition.
5. There should be proper supervision, monitoring and standardizing TVET programme implementation and certification as well as restructuring TVET programme to reflect current needs of the industries.

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