

Assessment of technical and vocational education training effectiveness in human resource development in Nigeria

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Abstract

This study was designed to assess the effectiveness of Technical and Vocational Education Training (TVET) in human resource development in Nigeria. Specifically, the study identified ways of achieving the objectives of human resources development through TVET and human resources development skills possessed by the training personnel of TVET. In line with these, two research questions and two hypotheses were formulated to guide the study. The design of the study was descriptive survey research design. The study was conducted in Niger state. The population of the study consisted of 159 respondents made up of 69 human resource managers in industries that registered with TVET, 48 graduates of TVET and 42 training development officers of TVET. The entire population was used for the study. The instrument for data collection was a 24-item questionnaire. Reliability coefficient of 0.98 was established using Cronbach Alpha technique. Research questions were answered using mean and standard deviation, while the null hypotheses were tested using t-test at 0.05 level of significance. The findings of the study revealed among others that there are ways such as Encouraging employers to train and retrain their workers and Co-coordinating the activities of human resource development through TVET through which the objectives of human resources development can be achieved through TVET. The study further revealed that there are human resources development skills possessed by the training personnel of TVET.

Introduction

Technology is a generic term covering all skills training in the engineering family, technical and vocational education. It involves training in the process of applying both sciences and technology education to solve practical problems. Technology education combines general education, the study of technologies and related sciences and the acquisition of practical skills relating to occupations in various sectors of economic and social life. Most countries of the world have realized that effective development of human resource (HR) is one of the best means of achieving economic development and growth and one of the ways this can be achieved is through Technical and Vocational Education Training (TVET). Human resource development (HRD) may, therefore, be regarded as an integral part of national development because adequate supply of

human resources is both a pre-condition for and a prima test of the feasibility of a country's national development (Akerle 2011). Armstrong (2009) noted that, the goals of development are the maximum possible utilization of human beings in productive activities and the fullest possible development of skills, knowledge, and capacities of the labour force. In his view, such other goals as economic growth, higher levels of living and equitable distribution of wealth would be the likely consequences of the pursuit of the earlier goals. The human resource component, therefore, plays a vital role in economic and national planning. The importance of this role has long been recognized not only by the academic but also by many world leaders and governments. For instance, Late President Johnson of the United States in 1968 once observed that, nothing mattered more to the future of America, than the human resources; not their military preparedness, which he said, was worthless without brain power to sustain and certainly not the valued American democratic system which he noted would be fragile if the citizens were ignorant.

Appreciably, the Nigerian government like other progressive governments has recognized the importance of human resources development in national development. This explains why Udoji (2012), in his report to the government stressed that, the major constraint to Nigeria's economic development was not just the availability of the financial and other capital inputs, but more importantly the adequacy of trained manpower in various occupations. One could easily see the relationship between the conclusion drawn by Udoji and the emphasis of Late President Johnson in 1968. According to Wikipedia (2014), human resource development is concerned with providing learning and development opportunities, making training interventions and planning conducting training programmes. It is essentially a strategic process, which is concerned with meeting both business and individual needs. Bernardin (2011) stated that human resource development is the use of training, organizational development, and career development efforts to improve individual, group, and organizational efficiency to mobilize workforce. He further stated that human resource development helps to: (i) develop the key competencies that allow individuals in organisations to perform current or future jobs, through planned learning activities (ii) Groups within organisations initiate and manage change and (iii) ensure a match between an individual and organizational needs. Damachi (2009) defined human resources development in terms of providing the right type of education, training and work motivation. Development, therefore, constitutes the process or procedure by which the capability of a person or a group of persons is rendered effective on an increasing basis for the performance of activities relating to specific objective. There are several competing definitions for human resource development including things such as unleashing human potential, training and development, career development, organizational performance, complex systems, organizational change and development, and other issues. In writing about effectiveness in relation to collective efforts or organizational act, Oke (2012) defined effectiveness as the degree to which an organization achieves its goals. Hence, whether individual or collective, the effectiveness of an effort is a

measure of its ability to achieve the desired result-aims and objectives. Therefore, an effective programme is one that produces the intended and successful result. There was, therefore, the need to carry out an assessment to determine the effectiveness of Technical and Vocational Education in human resource development in Nigeria.

Purpose of the study

The main purpose of this study is to assess the effectiveness of Technical and Vocational Education Training (TVET) in human resource development in Nigeria. Specifically the study sought to.

1. Identify ways of achieving the objectives of human resources development through TVET.
2. Identify human resources development skills possessed by the training personnel of TVET.

Research questions

1. What are the ways of achieving the objectives of human resources development through TVET?
2. What are the human resources development skills possessed by the training personnel of TVET?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

- H₀₁:** There is no significant difference in the mean responses of human resource managers from industries and training development officers of TVET on the ways of achieving the objectives of human resources development through TVET.
- H₀₂:** There is no significant difference in the mean responses of graduates of TVET training programmes and human resource managers from industries on the human resources development skills possessed by the training personnel of TVET.

Methodology

The design of the study is the descriptive survey. The study was conducted in Niger states. The population for the study was 159 made up of three groups, namely: 69 human resource managers from industries who registered with TVET; 48 graduates of TVET training programmes and 42 TVET training development Officers. The entire population was used for the study. The instrument for data collection consisted of structured questionnaire developed by the researcher. The instrument was validated by three experts in the Department of Industrial and Technology Education, Federal University of Technology Minna, Niger State. The reliability coefficient of the entire instrument was 0.98. The reliability coefficient was established using Cronbach Alpha

technique. Research questions were answered using mean and standard deviation, while the null hypotheses formulated were tested using t-test at .05 level of significance.

Results

To elicit answer to the Research Question 1, human resource managers from industries and training development officers of TVET were required to respond to ten items dealing with the ways of achieving the objectives of human resources development through TVET.

Table 1: Mean and Standard Deviations on the Ways of Achieving the Objectives of Human Resources Development through TVET. (N = 111)

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_G	SD	Remarks
1	Encourage employers to train and retrain their workers through TVET	4.80	4.95	4.82	0.31	Very great extent
2	Provide facilities for industrial training in general	4.18	4.48	4.21	0.73	Great extent
3	Assist industries to organize in-plant training programmes of their own and to develop facilities for the training of their staff	4.41	4.38	4.41	0.64	Great extent
4	Reimburse employers who contribute to the TVET levy training expense incurred by them.	4.83	4.81	4.83	0.38	Very great extent
5	Encourage and support the development of technological and commercial education	4.06	4.14	4.07	0.65	Great extent
6	Develop and train indigenous manpower for the country with a view to providing craftsmen for the maintenance of equipment and structures and for staffing the nation's industries.	4.64	4.76	4.65	0.62	Very great extent
7	Conduct research in identified training and development problems in industry and commerce in Nigeria	3.87	4.05	3.89	0.82	Great extent
8	Co-ordinate the activities of human resource development through TVET	4.89	4.81	4.88	0.79	Very great extent
9	Assist industries to organize vocational apprenticeship training	4.36	4.71	4.39	1.41	Great extent

10	Provide advisory and consultancy services for employers of labour and the general public on human resource development	3.87	4.33	3.91	1.31	Great extent
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Table 1 shows that both the human resource managers and training development officers of TVET accepted items 1 to 10 with mean ratings between 3.89 and 4.88 as being the ways of achieving the objectives of human resource development through Technical and Vocational Education Training. Items 1, 4, 6 and 8 have been achieved to a very great extent with mean ratings between 4.65 and 4.88 while items 2, 3, 5, 7, 9, and 10 have been achieved to a great extent with mean ratings between 3.89 and 4.41.

To elicit answer to Research Question 2, Graduates of TVET training programmes and training development officers of TVET were required to respond to fourteen items dealing with the skills possessed by training personnel of TVET.

Table 2: Mean and Standard Deviations on the What Are the Human Resources Development Skills Possessed by the Training Personnel of TVET (N = 90)

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_G	SD	Remarks
1	Competency in the skills they teach	4.42	4.86	4.44	0.94	Agree
2	Ability to develop courses of study satisfactorily	4.14	4.48	4.16	0.86	Agree
3	Ability to plan budget for tools, materials and equipment	4.20	4.19	4.20	0.94	Agree
4	Ability to select and arrange tools, machines and equipment in accordance with the best learning conditions	4.23	4.48	4.24	0.89	Agree
5	Ability to provide and assign the materials of trade for efficient conditions	4.25	4.14	4.25	0.83	Agree
6	Possess the teaching qualification enough to impart the knowledge on the trainees.	3.48	3.43	3.48	1.48	Undecided
7	Ability to instruct trainees on skills and technical information making use of good instructional methods and resources	4.25	4.43	4.26	0.84	Agree
8	Ability to know when trainees do not understand aspects of their lessons and carefully give explanation and clarification	4.21	4.57	4.23	0.89	Agree

9	Ability to give credits to trainees initiatives	2.55	3.71	2.59	1.49	Undecided
10	Ability to treat all trainees equally (impartial)	4.40	4.62	4.41	0.87	Agree
11	Ability to give tests that are related to what they teach	4.24	4.86	4.26	0.90	Agree
12	Ability to look ahead and apply new Idea to suit own situation	4.14	4.43	4.15	0.88	Agree
13	Ability to stimulate trainees to original thinking	4.36	4.76	4.37	1.02	Agree
14	Ability to guide and counsel trainees	2.52	3.14	2.55	1.45	Undecided

Table 2 shows that both the graduates of TVET training programmes and training development officers of TVET accepted items 11, 12, 13, 14, 15, 17, 18, 20, 21, 22, and 23 with mean ratings between 4.15 and 4.44 as being the skills possessed by training personnel of TVET. The two groups of respondents however, were undecided on items 16, 19 and 24 with mean ratings between 2.55 and 3.48 as being the skills possessed by training personnel of TVET. The data associated with this hypothesis are presented in Table 3.

Table 3: t-test Analysis on the Extent of Achievement of Objectives of TVET Programme

S/N	Items	\bar{X}_1	\bar{X}_2	SD ₁	SD ₂	t-cal	Remarks
1	Encourage employers to train and retrain their workers	4.80	4.95	0.40	0.22	-1.69	Ns
2	Provide facilities for industrial training in general	4.18	4.48	0.86	0.60	-1.56	Ns
3	Assist industries to organize in-plant training programmes of their own and to develop facilities for the training of their staff	4.41	4.38	0.68	0.59	0.19	Ns
4	Reimburse employers who contribute to the TVET levy training expense they incurred.	4.83	4.81	0.40	0.51	0.24	Ns
5	Encourage and support the development of technological and commercial education	4.06	4.14	0.83	0.85	-0.44	Ns
6	Develop and train indigenous manpower for the country with a view to providing craftsmen for the maintenance of equipment and structures and for staffing the nation's industries.	4.64	4.76	0.63	0.54	0.87	Ns

7	Conduct research in identified training and development problems in industry and commerce in Nigeria	3.87	4.05	1.03	0.87	-0.76	Ns
8	Co-ordinate the activities of Technical and Vocational Education (TVET)	4.89	4.81	0.34	0.51	0.96	Ns
9	Assist industries to organize vocational apprenticeship training	4.36	4.71	0.67	0.46	-2.35	S
10	Provide advisory and consultancy services for employers of labour and the general public on human resource development	3.87	4.33	1.03	0.58	-2.04	S

Key: \bar{X}_1 = mean of human resources managers, \bar{X}_2 = mean of training development officers of TVET SD_1 = Standard Deviation of human resources Managers, SD_2 = Standard Deviation of training development officers of TVET, Ns = Not Significant, S = Significant

The null hypothesis for the items on Table 3 was tested using t-test at $P = 0.05$ and 109 degrees of freedom. Calculated t values for all the items except items 9 and 10 had their calculated t-value lower than the table value of 1.96 (i.e. between -0.44 and 0.96), this indicates that there is no significant difference in the mean responses of human resource managers and training development officers of TVET on the items. The null hypothesis is therefore, upheld for items 1 to 8. This shows that the two groups of respondents are of the same view on the extent of achievement of the objectives of TVET programme on the items. The calculated t-values for items 9 and 10 were greater than the critical value of $t = 1.96$, being -2.35 and -2.04 respectively indicating that there is significant difference in the mean responses for the items and for which reason the null hypothesis is rejected for items 9 and 10. This implies that the two respondents held divergent opinions on the items. The data associated with this hypothesis are presented in Table 4.

Table 4: T-Test Analysis on the Human Resources Development Skills Possessed by the Training Personnel of TVET

S/N	Items	\bar{X}_1	\bar{X}_2	SD_1	SD_2	t-cal	Remarks
1	Competency in the skills they teach	4.42	4.86	0.89	0.91	1.53	Ns
2	Ability to develop courses of study satisfactorily	4.14	4.48	0.85	0.87	0.73	Ns
3	Ability to plan budget for tools, materials and equipment	4.20	4.19	0.99	0.86	0.52	Ns

4	Ability to select and arrange tools, machines and equipment in accordance with the best learning conditions	4.23	4.48	0.96	0.82	0.38	Ns
5	Ability to provide and assign the materials of trade for efficient conditions	4.25	4.14	0.86	0.80	1.79	Ns
6	Possess the teaching qualification enough to impart the knowledge on the trainees.	3.48	3.43	1.89	1.07	1.94	Ns
7	Ability to instruct trainees on skills and technical information making use of good instructional methods and resources	4.25	4.43	0.67	1.01	4.12	S
8	Ability to know when trainees do not understand aspects of their lessons and carefully give explanation and clarification	4.21	4.57	0.80	0.98	1.53	Ns
9	Ability to give credits to trainees initiatives	2.55	3.71	0.82	2.16	0.73	Ns
10	Ability to treat all trainees equally (impartial)	4.40	4.62	0.71	1.03	5.52	S
11	Ability to give tests that are related to what they teach	4.24	4.86	1.07	0.73	5.38	S
12	Ability to look ahead and apply new idea to suit own situation	4.14	4.43	0.83	0.93	1.79	Ns
13	Ability to stimulate trainees to original thinking	4.36	4.76	1.10	0.94	1.92	Ns
14	Ability to guide and counsel trainees	2.52	3.14	1.95	0.89	3.17	S

Key: \bar{X}_1 = mean of graduates of TVET training programmes, \bar{X}_2 = mean of human resource managers, SD_1 = Standard Deviation of human resources managers, SD_2 = Standard Deviation training development officers of TVET, Ns = Not significant, S = Significant

The null hypothesis for the items on table 4 was tested using t-test at P = 0.05 and 88 degrees of freedom. Calculated t values for all the items except items 17, 20, 21 and 24 had their calculated t-values lower than the table values (i.e. between 0.38 and 1.94), this indicates that there is no significant difference in the mean responses of graduates of TVET training programmes and human resource managers on the items. The null hypothesis is therefore, upheld for all the items except items 17, 20, 21 and 24. The calculated t-values for items 17, 20, 21 and 24 were greater than the critical value t =

1.96, being 4.12, 5.52, 5.38 and 3.17 respectively indicating that there is significant difference in the mean responses for the four items and for this reason the null hypothesis is rejected for these items. This implies that the two respondents held divergent opinions on the items.

Discussion

The findings of the study indicate that the objectives of Technical and Vocational Education Training as stated in the enabling NPE (2013) have been achieved to a great extent. The highest degree of achievements are: Encouraging employers to train and retrain their workers; reimbursing employers who contribute to the TVET levy training expense incurred by them; develop and train indigenous manpower for the country with a view to providing craftsmen for the maintenance of equipment and structures and for staffing the nation's industries, as well as coordinating the activities of Technical and Vocational Education Training (TVET). This tends to show that the TVET have really achieved the main aim of being set up which is to promote and encourage the acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained manpower sufficient to meet the needs of the Nigerian economy. This finding is in line with the reports of Ahmed (2010), Hassan (2013) Akerejola (2005), Bello (2005) Mohammed (2005) and Mshelia (2005) who identified the activities and achievement of the TVET and explained that different programmes geared towards building of human capital development personnel in companies were designed, developed and implemented across the country in addition to the effective running of Technical and Vocational Education Training so as to make education more relevant to the needs of commerce and industry and in order to bridge the yawning gap between the theory and practice of engineering, technology and allied disciplines in Nigerian schools. The finding of Okoro (2009) is upheld by this study. Okoro (2009) emphasized that the quality of staff used in operating vocational programmes determines to a large extent the quality of such programmes. This findings also support the observations of Olaitan (2006), Olaiya (2008) and Okorie (2010), who opined that teaching personnel of higher quality are required to teach trade courses in all technical institutions in Nigeria if the operations of the programmes is to be effective. The findings are also in accordance with the type of instructors recommended for ideal industrial workshop by weaver (2009). The findings of the study also revealed that the training personnel of TVET some human resources development skills. Favourable responses given to the human resource skills possessed by the training personnel in TVET show that the graduates of TVET training programmes and human resource managers are very appreciative of good quality instructions delivered by the training personnel which is very necessary for the development of skills in all the TVET training programmes. This finding is also in agreement with the views of Oyedeji (2002) which stipulated that quality instructors is an absolute pre-requisite to gainful learning, especially in a skill developing instructional process. The finding is in line with the views of Olaitan, Nwachukwu, Onyemachi, Igbo and Ekong (2009) who stated that one of the

characteristics of effectiveness of training programme is that the programme should have good quality teachers who are dedicated to their teaching and can go along with the learners in their efforts to learn. For this gainful and effective learning to be achieved, the personnel or trainer must possess such skills of training.

Conclusion

The objectives of Technical and Vocational Education Training as stated in its enabling decree have been achieved to some reasonable extent. The training personnel of TVET possess the required skills for training. Some of the training facilities, tools and equipment in TVET are adequate and functional. While some of them are either damaged, ill-maintained or obsolete. The TVET training programmes are oriented toward the holistic development of man's three domains; namely; the cognitive (knowledge), the affective (attitude) and the psychomotor (practical skills). This implies that graduates of TVET training programmes possess to some extent, the required practical skills, theoretical knowledge and affective work skills. The study also identified some limitations in the effectiveness of TVET training programmes. Furthermore, desirable strategies for improving the effectiveness of TVET training programmes have been elicited. Conclusively, the TVET has been reasonably effective in human resource development in Nigeria. Its deficiency in the area of facilities, tools and equipment should be remedied by the government in order to make TVET more effective.

Recommendations

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

1. Adequate supply of modern machines, tools, equipment and facilities for practical purposes in order to sustain the interest of trainers and trainees. TVET should encourage maintenance culture among the trainers and trainees.
2. There should be frequent evaluation of TVET training programmes. This will create room for regular curricula revision at the TVET to ensure relevance with respect to the needs of the industries/society.

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