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Achieving sustainable development through technical and vocational education and training in A developing economy: Imo state, Nigeria in focus

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Abstract
The study focused on achieving sustainable development through Technical and Vocational Education and Training in a developing economy of Imo State, Nigeria. Two research questions and two hypotheses guided the study. The descriptive survey design was employed for the study. The population comprised 2846 Academic Staff in the two Polytechnic' Institutions in Imo State, Nigeria. The sample size was 351 Academic Staff (Federal Polytechnic = 216; Imo Polytechnic = 135) representing 12.3% of the population. The proportionate stratified random sampling technique was used to draw the sample. An instrument titled "Achieving Sustainable Development through Technical and Vocational Education and Training Questionnaire (ASDTVETQ)" which was validated by experts and with reliability coefficient of 0.78 was used for data collection. The descriptive statistics of mean and standard deviation were used to answer the research questions and z-test was used to test the hypotheses at 0.05 alpha level. The study revealed among others that numerous constraints militate against effective technical and vocational education and training for sustainable development in Imo State, Nigeria. It was recommended among others that the Government should as a matter of policy give priority to TVET in the nation's educational programmes to ensure sustainable development.

Keywords: sustainable development, technical and vocational education and training, developing economy

Introduction

Sustainable development is a focus action expected of every nation by the United Nations within the time-bound of 2030. Sustainable development is a situation whereby the wellbeing and prosperity of the people are sustained. It is such a development that has longer duration for the good of the society. Sustainable development involves devising a social and economic system, which ensures that these goals are sustained, i.e. that real incomes rise, that educational standards increase, that the health of the nation improves, and that the general quality of life is advanced. According to Al-Roubaie as cited in Ajibade (2013) [1], sustainable development is a situation that requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life. It is an organizing principle that envisions a desirable state for human societies in which living conditions and resource-use continue to meet the human needs. Sustainable development is therefore a pathway which aims at economic, social and environmental growth for the good of the people. Education is seen as the primary strategy to be used to achieve sustainable development

Education is a vital tool for the promotion and improvement of the individual and the society at large. It equips people with knowledge and competencies required to be productive for their well-being and that of the society. Education is a key tool for economic, social, technological and ethical reorientation (Izuagba *et al*., 2017) [6]. Without gainsaying it, education remains the major instrument for both development of man and transformation of the human society. Education allows every human being to acquire the knowledge, skills, attitude and values necessary for sustainable development. Education is generally acknowledged as a key tool for sustainable development in that it equips learners with the basic knowledge, skills and values to make them useful and functional members of the society. Since education is considered the key to effective sustainable development strategies, Technical and Vocational Education and Training (TVET) then must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development.

Technical and Vocational Education and Training is a form of education meant for the building of an individual in terms of affective, cognitive and psychomotor skills, knowledge and attitudes through which the individual can be self-reliant and contribute meaningfully to the economic, physical, structural and social well-being of the nation. It comprises of two aspects of education: technical education and vocational education. Technical education is a formal education which prepares the learners for jobs involving applied science and modern technology and other related fields while vocational education is a formal education which prepares the learners for jobs designated as manual or practical trades or occupations focused on proficiency in the related fields. TVET is thus the comprehensive term referring to those aspects of the educational processes involving 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 (Federal Republic of Nigeria, 2014). Enyekit *et al*. (2011) [4] identified some of the benefits of TVET to include: full employment for the youths, technological advancement and economic development, international economic and political independent and reduction of crime and social vices. Alam (2007) [3] noted that investment in vocational education and training can produce benefits both to the individual and to the society as a whole. TVET is therefore an effective means of empowering young people to engage in productive activities and to sustain means of livelihood.

There are series of challenges which impede its growth to be one of the pathways to sustainable development. The study of Raimi and Akhuemonkhan (2014) [8] on the impact of technical vocational education and training on employability and national development revealed challenges of effective TVET implementation as poor funding, exposure to international best practices, inadequate quality control mechanism, infrastructural deficiencies in schools, lack of exchange programmes with the industry, curriculum inadequacy, paucity of TVET instructors/experts, negative perception about TVET, stereotyping of TVET graduates, bias in the placement of TVET graduates et cetera. Yusuff and Soyemi (2012) [10] identified some constraints that militate against the use of TVET in colleges, polytechnics and universities as a driver of sustainable economic development. These are negative perception of TVET as career path for less academically endowed, discrimination against graduates of technical institutions, lack of linkage between formal and non-formal TVET, poor implementation of staff development training policy, insufficient laboratory and workshop equipments, low enrollment in technical schools, absence of partnership between training institutions and industry, societal respect for the "scholars" and disdain for "mechanics" and mismatch between training and labour market needs. Akporehe *et al*. (2017) [2] asserted that the Nigerian educational system in general and TVET in particular is confronted by a lot of challenges and these are militating against achieving its goals.

Achieving sustainable development through technical and vocational education and training requires evolving strategies to surmount the challenges that besiege TVET. Strategies are forward-looking plans that anticipate change and initiate actions to take advantage of opportunities. Ugwoke *et al*. (2016) [9] carried out a study on effective implementation of TVET—industry partnership for employability of graduates through work integrated learning (WIL) in Nigerian universities. The study revealed the strategies that can lead to the enhancement to include: incorporating work integrated learning in the national policy on education and the TVET curriculum; encouraging TVET teachers to undergo professional development training in WIL and creating special fund for the implementation of WIL programs in TVET institutions. Zite and Deebom (2017) [11] identified strategies for addressing the challenges of attaining quality TVET to include improving links between industry and TVET institutions, implementing a flexible workable TVET programmes, synergy between TVET institutions and industries for practical skills, TVET lecturers should be open to in-service training, provision of adequate training facilities, TVET lecturers should be highly remunerated. Akporehe *et al*. (2017) [2] are of the opinion that despite the challenges militating against TVET in Nigeria, when the essentials (strategies) suggested are put into practice TVET will be a well-managed programme and would yield its rightful fruits and therefore be a beacon of hope in achieving sustainable development.

Statement of the Problem

Sustainable development is a pathway which aims at economic, social and environmental growth for the good of the people. Achieving sustainable development appears to be elusive in the developing countries especially in Nigeria. This is because education which is the major tool for achieving sustainable development especially TVET has not been given the focus it deserves and its significance has not been fully embraced. This appears to rob the nation of some contributions their graduates would have made to the economy. This results to under-advancement in the industries, poor technological advancement with its vagaries of economic dependency, unemployment, poverty, social aggression/depression and hopelessness. The above observation has been the greatest cause of thuggery, hooliganism and prostitution for most youth who have failed in their search of basic sustenance or lack sufficient protection to avoid being lured into such precarious activities that are mentioned above. There is therefore the need to foster TVET in the education system in order to ensure the achievement of sustainable development.

Aim and Objectives of the Study

The study aimed at achieving sustainable development through technical, vocational education and training in Imo State, Nigeria. The specific objectives are to:

1. investigate the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria
2. Determine the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria

Research Questions

The following research questions guided the study

1. What are the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria?

2. What are the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria?

Hypotheses

The following hypotheses were tested at 0.05 alpha level

1. There is no significant difference between the mean values of Academic staff of Federal Polytechnic and Imo State Polytechnic on the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria
2. There is no significant difference between the mean values of Academic staff of Federal Polytechnic and Imo State Polytechnic on the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria

Methodology

The descriptive survey design was employed for the study. The population comprised 2846 Academic Staff in the two Polytechnics' Institutions in Imo State, Nigeria. The sample size was 351 Academic Staff (Federal Polytechnic = 216; Imo Polytechnic = 135) representing 12.3% of the population. The proportionate stratified random sampling technique was used to draw the sample. An instrument titled "Achieving Sustainable Development through Technical and Vocational Education and Training Questionnaire (ASDTVETQ)" which was validated by experts and with reliability coefficient of 0.78 was used for data collection. The descriptive statistics of mean and standard deviation were used to answer the research questions and z-test was used to test the hypotheses at 0.05 alpha level. An item with a calculated mean value equal or greater than 2.50 was accepted while an item with the calculated mean value less than or equal to 2.49 was rejected.

Results

Research Question One: What are the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria?

Table 1: The Mean Scores and Standard Deviations on the Constraints militating against Effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

S/N	Items: Constraints Variables	X	SD	Decision
1.	Negative perception of TVET as career path for less academically endowed.	3.06	0.57	Agreed
2.	Discrimination against graduates of technical institutions.	3.00	0.59	Agreed
3.	Lack of linkage between formal and non-formal TVET.	2.87	0.68	Agreed
4.	Poor implementation of staff development training policy	3.14	0.45	Agreed
5.	Insufficient laboratory and workshop equipment.	2.91	0.64	Agreed
6.	Low enrollment in Technical Institutions.	2.49	0.98	Disagreed
7.	Absence of partnership between training institutions and industry.	3.17	0.40	Agreed
8.	Mismatch between training and labour market needs.	2.96	0.60	Agreed
	Aggregate Mean	2.95	0.61	

Table 1 shows that all the items except item 6 with the mean score of 2.49 have mean scores above the criterion mean of 2.50. The data indicated that items 1, 2, 3, 4, 5, 7 and 8 are the constraints that militate against effective Technical and Vocational Education and Training for Sustainable Development

Research Question Two: What are the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria?

Table 2: The Mean Ratings and Standard Deviations on the Strategies to mitigate the Constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

S/N	Items: Constraints Variables	X	SD	Decision
9.	Putting in place policy that enhances the status and attractiveness of TVET.	3.10	0.47	Agreed
10.	Provision of adequate infrastructural facilities and training equipment.	3.09	0.49	Agreed
11.	Engaging in massive awareness campaigns on the value of TVET.	2.89	0.65	Agreed
12.	Enforcement of technical and vocational education on students.	2.47	0.99	Disagreed
13.	Establish strong linkage and collaboration between training institutions and industries.	3.15	0.43	Agreed
14.	Enforce good staff development training programme.	3.05	0.52	Agreed
15.	Intensification of public-private partnership scheme for TVET.	3.01	0.58	Agreed
16.	Involvement of technical and vocational education professionals in policy making.	2.62	0.81	Agreed
17.	Introduce sustainable financing scheme for TVET.	3.17	0.40	Agreed
	Aggregate Mean	2.95	0.59	

Table 2 indicates that item 11 has mean rating of 2.47 which is below the criterion mean of 2.50 while all the other items have mean ratings above the criterion mean of 2.50. The data showed that items 9, 10, 11, 13, 14, 15, 16 and 17 are the strategies to mitigate the constraints of technical and vocational education and training for sustainable development.

Hypothesis One: There is no significant difference between the mean scores of Academic staff of Federal Polytechnic and Imo State Polytechnic on the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

Table 3: Z-test Analysis of Difference between the Mean Scores of Academic staff of Federal Polytechnic and Imo State Polytechnic on the Constraints militating against Effective Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

Respondents	N	X	SD	df	Z-cal	Z-crit	Decision
Academic Staff of Fed. Poly	216	3.01	0.56	349	1.38	1.96	Accepted
Academic Staff of Imo Poly	135	2.89	0.67				

Table 3 shows that at 349 degrees of freedom and 0.05 alpha level, the calculated z-value of 1.38 is less than the critical z-value of 1.96. Since the calculated z-value of 1.38 is less than the critical z-value of 1.96, the study retained the null hypothesis. Based on the above, there is no significant difference between the mean scores of Academic staff of Federal Polytechnic and Imo State Polytechnic on the constraints militating against effective Technical and Vocational Education and Training for Sustainable Development.

Hypothesis Two: There is no significant difference between the mean ratings of Academic staff of Federal Polytechnic and Imo State Polytechnic on the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

Table 4: Z-test Analysis of Difference between the Mean Ratings of Academic staff of Federal Polytechnic and Imo State Polytechnic on the Strategies to mitigate the Constraints of Technical and Vocational Education and Training for Sustainable Development in Imo State, Nigeria.

Respondents	N	X	SD	df	Z-cal	Z-crit	Decision
Academic Staff of Fed. Poly	216	3.00	0.53	349	1.96	1.17	Accepted
Academic Staff of Imo Poly	135	2.90	0.66				

Table 4 reveals that at 349 degrees of freedom and 0.05 alpha level, the calculated z-value of 1.17 is less than the critical z-value of 1.96. Since the calculated z-value of 1.17 is less than the critical z-value of 1.96, the study upheld the null hypothesis. Therefore there is no significant difference between the mean ratings of Academic staff of Federal Polytechnic and Imo State Polytechnic on the strategies to mitigate the constraints of Technical and Vocational Education and Training for Sustainable Development.

Discussion of Findings

The study revealed that negative perception of TVET as career path for less academically endowed, discrimination against graduates of technical institutions, lack of linkage between formal and non-formal TVET, poor implementation of staff development training policy, insufficient laboratory and workshop equipment, absence of partnership between training institutions and industry and mismatch between training and labour market needs are the constraints that militate against effective Technical and Vocational Education and Training for Sustainable Development. The finding is consistent with the finding of Raimi and Akhuemonkhan (2014) [8] that the challenges of effective TVET implementation are poor funding, exposure to international best practices, inadequate quality control mechanism, infrastructural deficiencies in schools, lack of exchange programmes with the industry, curriculum inadequacy, paucity of TVET instructors/experts, negative perception about TVET, stereotyping of TVET graduates, bias in the placement of TVET graduates et cetera. The finding is in tandem with the constraints that militate against the use of TVET in colleges, polytechnics and universities as a driver of sustainable economic development as identified by Yusuff and Soyemi (2012) [10]. The finding is in line with the assertion of Akporehe *et al*. (2017) [2] that the Nigerian educational system in general and TVET in particular is confronted by a lot of challenges and these are militating against achieving its goals.

The study equally revealed the following as the strategies to mitigate the constraints of technical and vocational education and training for sustainable development: putting in place policy that enhances the status and attractiveness of TVET, provision of adequate infrastructural facilities and training equipment, engaging in massive awareness campaigns on the value of TVET, establish strong linkage and collaboration between training institutions and industries, enforce good staff development training programme, intensification of public-private partnership scheme for TVET, involvement of technical and vocational education professionals in policy making and introduce sustainable financing scheme for TVET. The finding complements the finding of Ugwoke *et al.* (2016) [9] on the strategies that can lead to the enhancement of the implementation of TVET which include: incorporating work integrated learning in the national policy on education and the TVET curriculum;

encouraging TVET teachers to undergo professional development training in WIL and creating special fund for the implementation of WIL programs in TVET institutions. The finding is in consonance with Zite and Deebom (2017) [11] who identified strategies for addressing the challenges of attaining quality TVET to include improving links between industry and TVET institutions, implementing a flexible workable TVET programmes, synergy between TVET institutions and industries for practical skills, TVET lecturers should be open to in-service training, provision of adequate training facilities, TVET lecturers should be highly remunerated. Akporehe *et al*. (2017) [2] are of the opinion that despite the challenges militating against TVET in Nigeria, when the strategies suggested are put into practice TVET will be a well-managed programme and would yield its rightful fruits and therefore be a beacon of hope in achieving sustainable development.

Conclusion

Based on the findings, the study concluded that TVET is fraught with constraints that hinder its effective contributions to sustainable development. There are strategies to surmount the constraints of TVET for sustainable development.

Recommendations

On the basis of the findings, the study made the following recommendations:

- The Government should as a matter of policy give priority to TVET in the nation's educational programmes to ensure sustainable development.
- Educational institutions/training providers should not allow these constraints to dispirit their effort in carrying out their statutory responsibility.
- The government should be proactive in opting for the strategies to surmount the constraints militating against TVET.

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