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Technical Vocation: The Route towards Sustainable Development

[1]Okparaku, Victor Ikedichi and [2]Yillah, AlamaIshaku

[1]Department of Science Laboratory Technology, Uma Ukpai Polytechnic, Asaga, Ohafia, Abia State, Nigeria

[2]Department of public administration, Federal Polytechnic, Oko, Anambra state, Nigeria.

Corresponding Author's email: okparakuvictorik@gmail.com

Abstract

This paper established the nexus between technical vocation and sustainable development. The research work which is pivoted on system theory. Survey method (questionnaire precisely) was employed in generating data. The statistical tool applied in analyzing the data is correlation coefficient. The finding from the data shows that there is a very strong positive relationship between technical vocation and sustainable development. More so, incorporating technical vocation programs into the curriculum of institution of higher learning together with the urgent funding and establishing of technical vocation centres across tertiary institutions, especially the technical institutions (the polytechnic) is recommended as strong tool to promoting sustainable development.

Keywords: Technical Vocation, Vocational Education, Development, Sustainable Development.

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Introduction

Over the years Nigeria has expressed a commitment to education with the belief that overcoming illiteracy and ignorance will form a basis for accelerated national development. However, regardless of the incontrovertible evidence that education is crucial to the development of the community and the nation, there remains an inequalityin access to education. Also, despite its potential for leveling opportunities, education is pathetically used to perpetrate inequalities. Millions of poor people are still being excluded from the processes and outcomes of education. Level of educational system needs to be improvedin Nigeria.From the related literatures, improvement of educational system is found to be a crucial matter as documented.

Technical and Vocational Education remains imperative for economic development in Nigeria[4]. However, it is identified that some reasons for the desultory performance to include inadequate infrastructure and facilities, serious dearth of academic staff with cognate practical experience relevant for the training of students to meet the contemporary needs of industry and employers, wide disconnection between institutions and industry, weak support by industries to institutions' programs, inadequate budgetary provision forTechnical and Vocational Education and Training(TVET), absence of a National Qualifications framework and inadequate regulatory and monitoring activities among others [10].

The United Nations Educational, Scientific Cultural Organization (UNESCO) division of secondary Technical and Vocation Education affirms that often throughout recent decades, the skills imparted by the national education system did not match those demanded in the workplace. This has been evidenced in many countries and this mis-match has widened in recent years with the integration of new technologies in almost every sphere of professional activity. Most governments prioritize narrowing the gap between education and the world of work because of the potential economic and social benefits. It can increase the proportional of the population that engages in productive ways of making a living [8]. New studies show that the face of Vocational and Technical Education is changing, a phenomenon that presents challenges for the cultural traditional model. Levesque, Laven, Teitelbaum, Alt and Libera wrote that:

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"Historically, Vocational and Technical Education have had the role of preparing young adults for direct entry into the job market or labour pool with fewer credentials than college students" [6].

Sustainable development (SD) concept was adopted as an overarching goal of economic and social development by UN agencies, by twenty one (21) nations, and by many local governments and private-sector actors. The SD literature largely emerged as a reaction to a growing interest in considering the interactions and potential conflicts between the World Commission on Environment and Development. This literature described SD as Our Common Future Development defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs [15].

The objective of this work is to hypothetically ascertain whether technical education could promote sustainable development in Nigeria.

Development and Sustainable Development

Reyes defined development as a social condition within a nation, in which the needs of its population are satisfied by the rational and sustainable use of natural resources and systems [11].Also, [3] define development as any learning activity which is directed towards future needs rather than present needs, and which is concerned more with career growth than immediate performance. The focus of development in this study tends to be primarily on societal requirements and the growth of needs in the society.

Literally, sustainability means a capacity to maintain some entity, outcome or process over time[2]. However, in development literature, most academics, researchers and practitioners[7, 14]apply the concept to connote improving and sustaining a healthy economic, ecological and socialsystem for human development.

Sustainable development has become the buzzword in development discourse, having been associated with different definitions, meanings and interpretations. Taken literally, SD would simply mean "development that can be continued either indefinitely or for the given time period [5, 12].

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Technical Vocation and Sustainable Development

Technical vocation (education) creates a platform to equip both young and old. The equipping of the people could be through entrepreneurial studies and technological know-how. It passes the paper qualification of the tertiary education.

Technical Vocation as an education of acquiring skills in arts, sciences and technology is the concrete pathway of creating development and sustaining the development for both the present and future endeavors. This nexus between technical vocation and sustainable development results in providing employment and eradicating poverty in the society.

Research Questions

i. Is Technical Vocation, a Route to Sustainable Development?

ii. Can Development be sustained?

Research Hypothesis

The hypothesis relating to the research objective of the study was formulated and tested. The hypothesis is formulated towards the assessment of whether technical vocation is a route for sustainable development.

Hypothesis

H_0: Technical vocation is not a route to sustainable development.

H_1: Technical vocation is a route to sustainable development.

Theoretical Framework

The discourse is anchored on system theory that was propounded in the 1940s by a biologist, Ludwig von Bertalanffy, and later reviewed by Ross W. Ashby in 1956.

A system is a cohesive conglomeration of interrelated and interdependent parts which can be natural or human-made. Every system is bounded by space and time, influenced by its environment, defined by its structure and purpose, and expressed through its functioning. A system may be more than the sum of its parts if it expresses synergy or emergent behavior. Changing one part of a system may affect other parts or the whole system. For systems that

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learn and adapt, the growth and the degree of adaptation depend upon how well the system is engaged with its environment. Some systems support other systems, maintaining the other system to prevent failure. The goals of systems theory are to model a system's dynamics, constraints, conditions, and to elucidate principles (such as purpose, measure, methods, tools) that can be discerned and applied to other systems at every level of nesting, and in a wide range of fields for achieving optimized equal finality [2].

Systems theory is defined as an interdisciplinary field of science concerned with the nature of complex systems, be they physical or natural or purely mathematical. Systems theory is also a conceptual framework based on the principle that the component parts of a system can best be understood in the context of the relationships with each other and with other systems, rather than in isolation[13].

In this research, the system theory would be applied to verify is there is a correlation existing vocation education and sustainable education. However, the data to be generated would be used to establish a relationship between the two variables (technical education and sustainable education) as parts of the system.

Research Methodology

The data were sourced through primary and secondary approaches. This is a descriptive work with cross-sectional survey design. That is to say, data for the study were collected by the use of survey questionnaire and interviews.Questionnaire was administered to 50 workers from two entrepreneurial studycentres of two Polytechnic in South-east region of Nigeria, which are Federal Polytechnic, Oko, Anambra state and Uma Ukpai Polytechnic, AsagaOhafia, Abia state, both in Nigeria. Out of the 50 questionnaires distributed, 45 were returned.
Secondary data were sourced frombooks, journal articles, and the Internet. Data collected were statistically analyzed using correlation coefficient.

The Pearson correlation coefficient (PCC) is going to be adopted in presenting the research question. The PCC variables are categorized into dependent and independent variables.The range of the correlation coefficient runs from -1 to +1.The range of R can be described as follows: -1 means there is very strong negative correlation (relationship) and +1 means that there is a very strong positive correlation (relation). The pivot value of R, a 0 (zero) simple

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means that there is no correlation (relationship), in others words called zero correlation. Statistically, PCC measures the dependence or association of two variables.

The Pearson correlation coefficient (R) can be calculated by applying the formula:

$$R = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad \text{eqn. 1}$$

Where n is the sample size or number of pairs of data. The degree of freedom is given as, df = n-2. The level of significance, $\alpha = 0.05$ with a confidence level of 95%.

Data Presentation

Table 1:Representaion of data collected from staff of entrepreneurial studies centres of the federal Polytecnica, Oko (FPO) and Uma Ukpai Polytechnic, Asaga (UUPA).

Name of Institution	Number of Staff Selected	Total Questionnaire Distributed	Total Questionnaire Returned	Total Questionnaire not Returned
FPO	30	30	28	2
UUPA	20	20	17	3

Source: Fieldwork and Authors' computation (2022)

From the data collected, it was observed that 26 out of 28 questionnaires and 16 out of 17 questionnaires returned from FPO and UUPA respectively have positive responses.

Findings and Discussion

The data acquired are presented and analyzed using Correlation Coefficient (R) Test.The research question is tested here with Pearson correlation coefficient so as to arrive at values that enables the researcher accepts or rejects the null or alternative statement of hypothesis.

Research Question

Is Technical Vocation a Route to Sustainable Development?

Hypothesis

H_0: Technical vocation is not a route to sustainable development.

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H_1: Technical vocation is a route to sustainable development.

R-Test:

Table 2: Showing computation of correction coefficient of the research question.

Pearson	Institution	Positive Response on Technical Vocation (X)	Degree of how it is a Route toSustainable Development (Y)	XY	X^2	Y^2
1.	FPO	26	62	1612	676	3844
2.	UUPA	16	38	608	256	1444
∑	**-**	**42**	**100**	**2220**	**932**	**5288**

Source: Fieldwork and Authors' computation (2022)

The correlation coefficient level of significance, α = 0.05 and the critical value of correlation coefficient from table of critical values = 0.811.

By applying equation 1 above, the calculated value of correlation coefficient becomes:

Correlation coefficient, R = + 1.

In the research question for the findings of R-test (table 2), critical value of tabulated R is 0.811 and the computed R is + 1. It simply means that there is very strong positive correlation between technical vocation and sustainable development as asserted (responded) by the selected staff of entrepreneurial studiescentres of FPO and UUPA. Also, the findings provide proof that adequate availability of technical vocational centres will create development that will stand the test of time (i.e. sustainable development). However, it is accepted that technical vocation is a clean slate route to sustainable development. There are different technical vocations but the one taking into consideration in this research is entrepreneurial studies in polytechnics.

Analyses of the data show that sustainable development is dependent on technical vocational centres. Also, it is a vital factor or agent of attaining sustainable development in a nation like

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Nigeria. This simply means that a good channel or path to achieving sustainable development is the path of technical vocation.

Conclusion

The findings demonstrate the efficiency and reality of system theory in which this research is hinged. This theory is based on the idea that systems of nature and human systems, as well as combined human and nature systems and socio-ecology systems, are interlinked in never-ending adaptive cycles of growth, accumulation, restructuring and renewal within hierarchical structures. Plausibly, the findings have reflected that technical vocation is a system of nature (controlling system) that is interlinked to generate development in an unending adaptive sequence for optimum growth, renewability of the growth and restructuring of the growth structures to maintaining sustainability of the development. Moreover, any positive and ever-growing oriented policy on technical vocation will definitely generate sustainable development.

Good and quality technical vocational centres in polytechnics (even all the institutions of higher learning) and othercentres outside institutions are exceedingly necessary to acquiringskills in enabling or empowering students and, or people to adapt and align hugely in the flight transitional endeavours. Technical vocation and sustainable development can be denoted with X and Y respectively. It can be concluded that Y varies directly with X ($Y \alpha X$).From the findings, the gathered Yvaries directly with X (i.e. $Y \alpha X$). Therefore these variables can be expediently said to be related. This relationship hypothetically designates that technical vocation significantly promotes sustainable development.

Taking into account the effect of the findings, two essential theoretical approaches of this research work could be proposed. This first theoretical approach states that “technical vocation is key driver that ignites acceleration of development, and provides sustainability of the development for present and future generations”. The second theoretical approach states, “Technical vocation is a key variable in a natural (environmental) system that independently accelerates development goals and sustains the development goals through sheer war against dependency on paper certificate”.

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Recommendations

Different authors made their recommendations to improve educational system: improving policy onInformation and Communication Technology(ICT), the need for good understanding of the process of policy formulation, the need for political lobbying and advocacy in order to solve logistic problem and bureaucratic bottlenecks, dire need for a new system of education, improved policy on Science and Technology; harmonization of the differential remunerations for graduates of Polytechnics and Universities among others

In this work, the following recommendations are made:

1. Since polytechnics in Nigeria are technical higher institutions, then there should be technical vocation centres established in all polytechnic and other equivalent tertiary institution.
2. There should be less dependency of white paper certificate which has caused more unemployment due to ratio white collar job opportunities to number of graduates from higher institutions.
3. It should be incorporated into the curriculum of tertiary institutions that acquisition of a skill be a requirement for completion of a degree or diploma.

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